WESTERN INDUSTRY

• Propellers must have the right kind of curves, too. This is one of many turned out on Pacific Coast for Maritime Commission ships.

Twenty-Five Cents VOLUME X NUMBER 2 February, 1945

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AD 105

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Noise problems for thousands of firms have been successfully solved by Western Asbestos Co. Using Acousti-Celotex, the most widely used of acoustical materials, noise is transformed into a gentle hush. It reduces nervous fatigue, aids production, steps up efficiency. Morale improves . . . absenteeism and employee turnover are sharply reduced.

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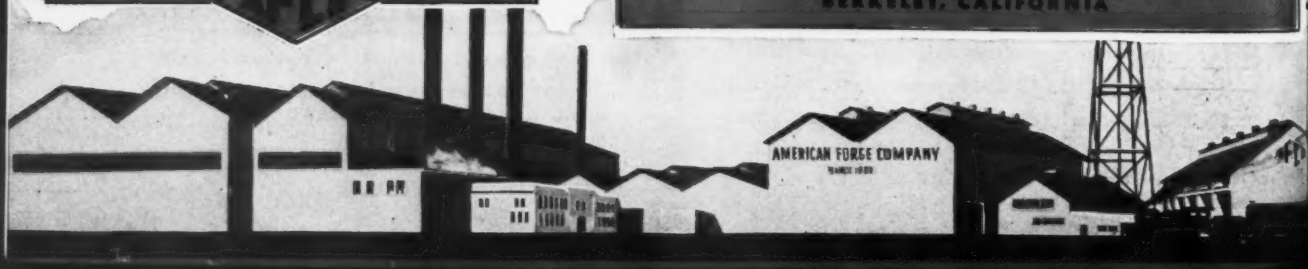

EDITORIAL COMMENT

The West Swings into Action

OUR WESTERNERS in Congress are to be congratulated for their timely and energetic action in getting a good representation from their number on Congressional committees that are important to the economy of the West. To be sure, we missed out on the all-important House Rules Committee, but that is not surprising, in view of the fact that the West apparently has never made a concerted demand before on the powers that be in Congress.

Western Industry helped in the matter by a forceful presentation in the January issue, based on maps and data prepared by W. G. Herron, showing how the West has heretofore never been given adequate numerical recognition on these important committees. A preprint of this article was mailed out to a large number of our readers, with a letter suggesting the desirability of their urging their Congressmen to go out for these important committee jobs.

Many letters have been received indicating that the preprint and the article as it finally appeared stimulated both people at home in the West and the Western delegation in Congress to get into action, with very beneficial results.

It should be remembered, however, that our Western representation on the committees in whose hands lie much of the future of industry in the Western states is still below what it should be. The fight must be kept up, in season and out of season, and preparations made long in advance for the next Congress after the present one.

The Western Regional Council, organized by the Western commercial association secretaries last November, could have made its prospective meeting in Salt Lake City in February an occasion for laying the groundwork on this job. Unfortunately the ODT's new rule against large meetings has made impossible an adequate gathering for such a purpose. And it must also be said that the Western Regional Council seems to be letting the tail wag the dog by making the solution of the Western steel problem the main order of business. That matter could better have waited than the governmental situation.

Since a full-scale Western meeting cannot be held, each Western state could very profitably set up a small committee representing industry, agriculture and labor to formulate a Washington program of benefit to the entire West. Then these 11 representatives could get together easily enough and agree on a united Western program. It might be a more effective way in the end than to work through chambers of commerce which are apt to have limited local viewpoints instead of a broad vision of the needs of the West.

Pays to Be Patriotic

IN 1942 everyone realized that the only way to win a war was to put first things first. It was not a question of how little, but how much, could be given to the war effort. If that sentiment were uppermost everywhere today, the problem of adjusting manpower to the needs of the war situation would be a minor one in the East. Every industrial establishment would tell the truth as to how many workers were actually needed, every worker would be willing to go where he could be most useful, no civilian contract would get any preference over a war contract. The quickest, cheapest and most satisfying way to win the war is to adopt—and live—the slogan, "It pays to be patriotic."

WESTERN INDUSTRY

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OUR COVER PICTURE

• When West Coast shipbuilders started out to break production records, propellers had to be provided on fast schedules, with the result that Eastern shipyards also were supplied from the same source in some instances. Doran Company in Seattle is the manufacturer of the propeller shown on the cover. Picture was taken at Swan Island yard of Kaiser Co.

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Scientists who dig in ruins say it took an Egyptian scribe at least 18 hours to carve out the list of oxen, geese, breads, green eye paints, and jars of unguent on these 3800-year-old limestone tablets.

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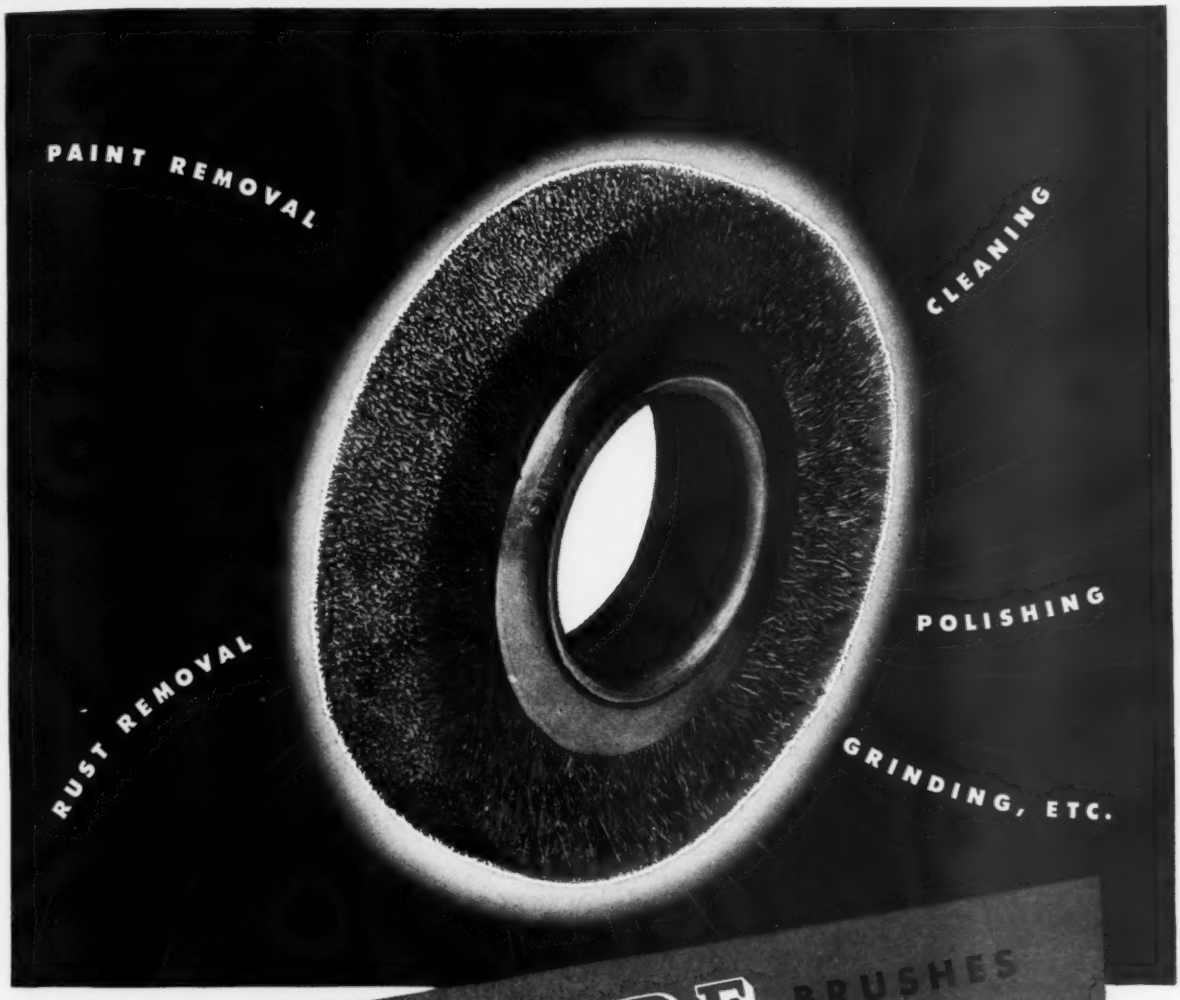

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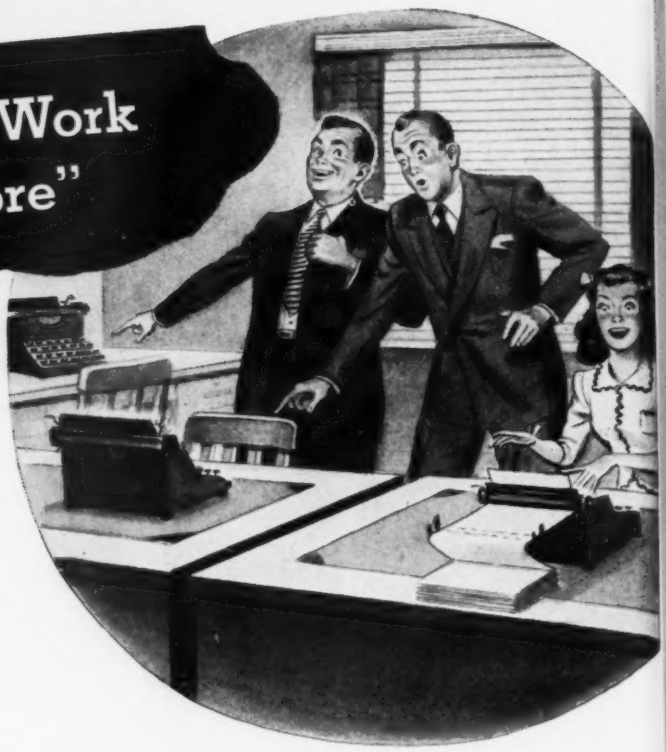

Nor does Tillie, her assistant. Both were moved to another department. Why? Well, by combining records with Uarco **continuous-strip** forms, *one* person can handle the record writing for all departments. Results show a rise in efficiency . . . time saved . . . fewer errors.

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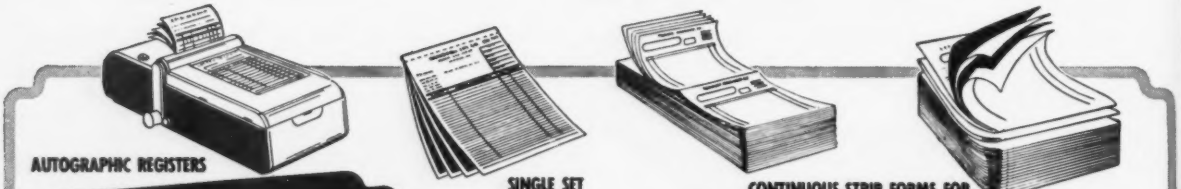

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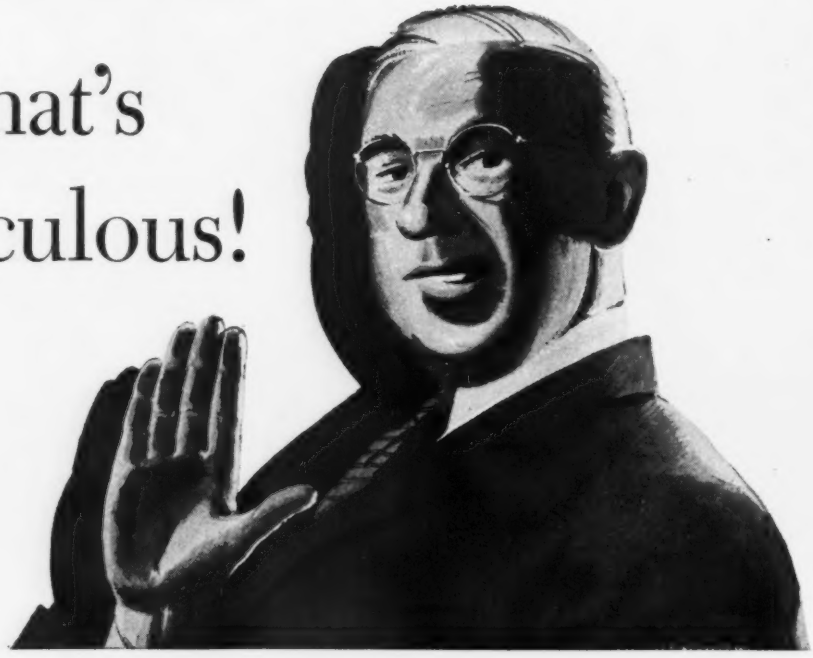

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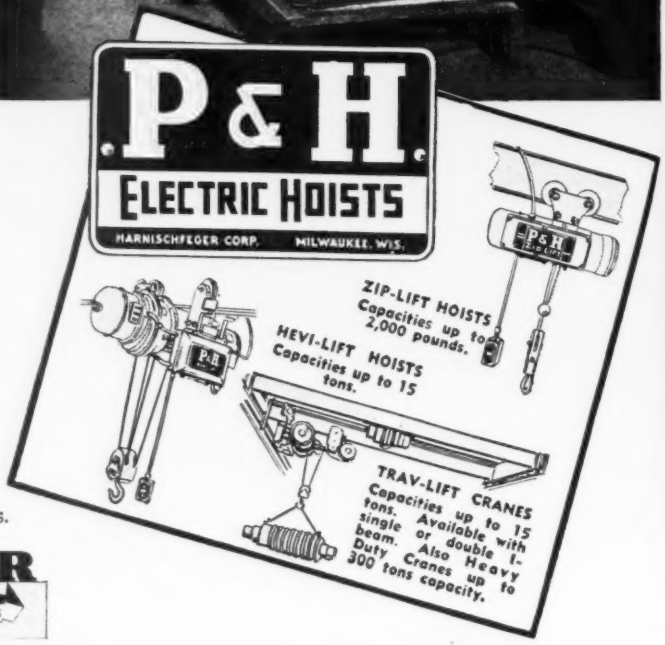
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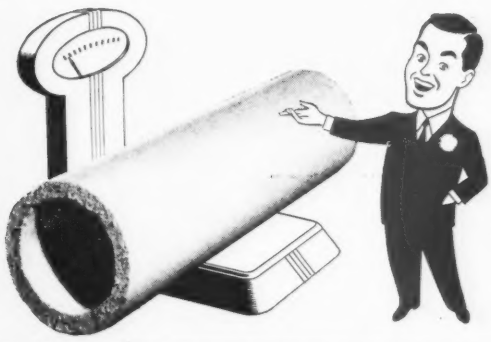

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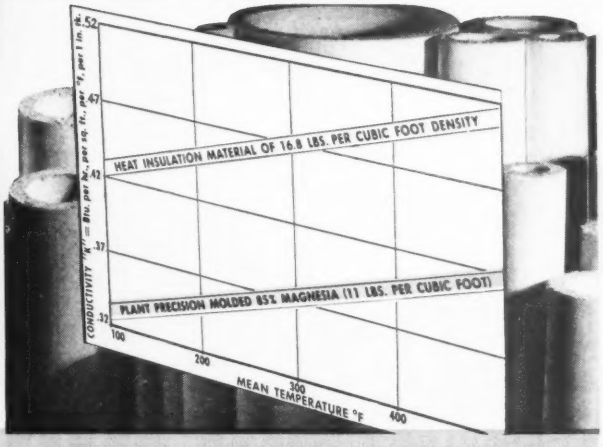

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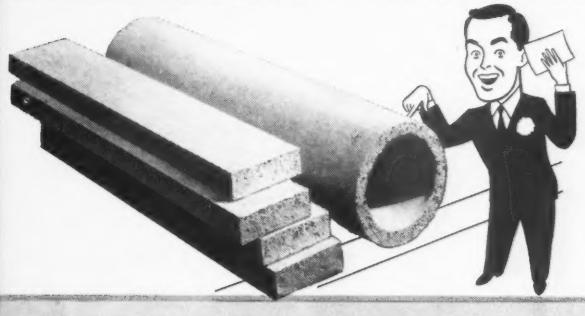

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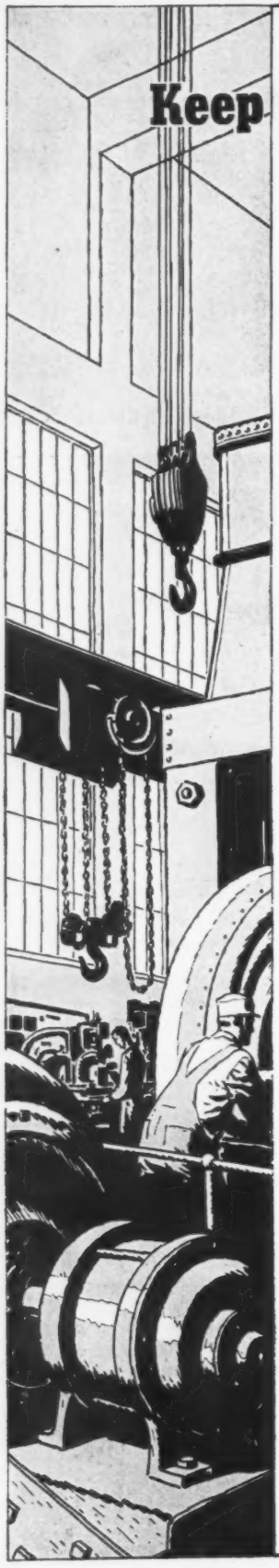

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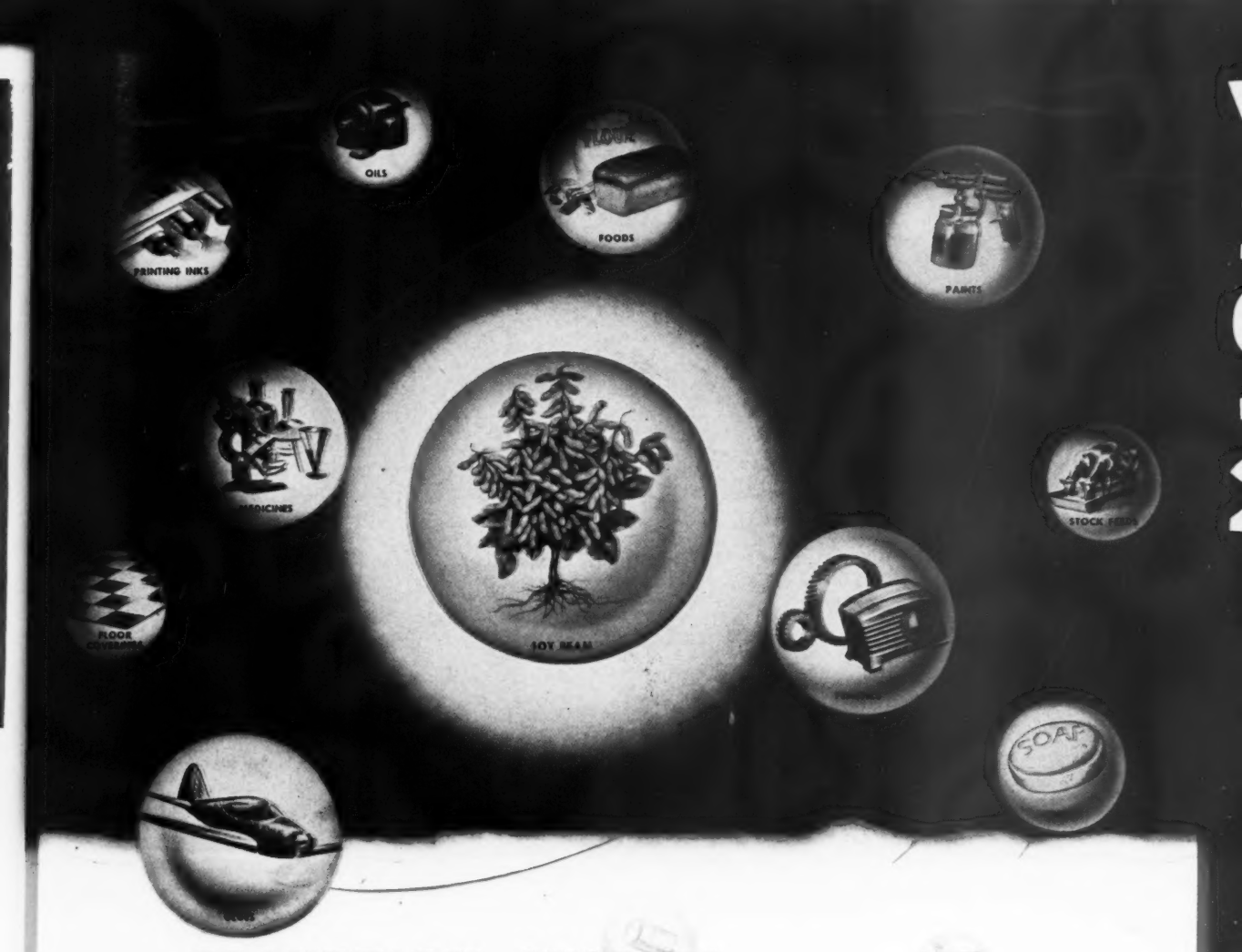

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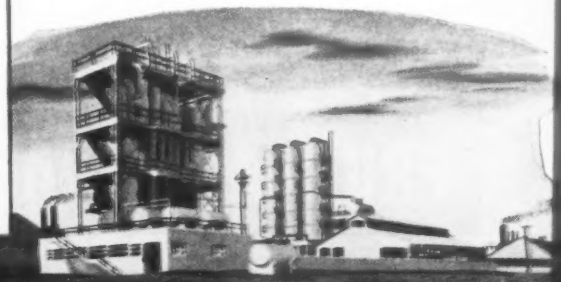

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Hugh Rader Lumber Company keeps scores of pattern manufacturers supplied with this clear lumber from their Detroit yard. Shops in Flint, Saginaw, Bay City and other neighboring towns, within a radius of 80 miles, depend upon the company's delivery schedule.

1½-Ton trucks, pulling Fruehauf Trailers, handle these loads, many of which weigh as much as 10 tons!

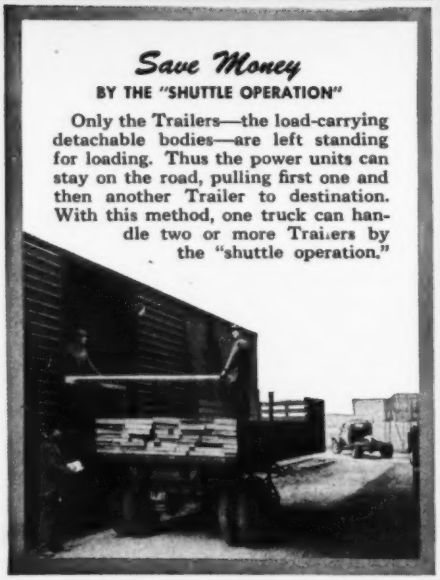
"We bought our new Trailers on the strength of the economical performance of our old Fruehaufs which served us so well for many years," says Mr. Rader.

Lower initial cost—lower replacement cost—lower gasoline and maintenance costs—no lost loading-time with the "shuttle" operation—are all good reasons why so many dealers are saving by the Trailer method.

Have you checked your delivery set-up lately? If not, call in the Fruehauf man. He'll be glad to make an analysis for you—and likely as not he can point the way to important savings.

Save Money
BY THE "SHUTTLE OPERATION"

Only the Trailers—the load-carrying detachable bodies—are left standing for loading. Thus the power units can stay on the road, pulling first one and then another Trailer to destination. With this method, one truck can handle two or more Trailers by the "shuttle operation."



World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY

Western Manufacturing Plant—Los Angeles

Sales and Service Branches

Portland · Spokane · Seattle
San Francisco · San Diego · Los Angeles
Fresno · Denver · Phoenix
Salt Lake City · El Paso

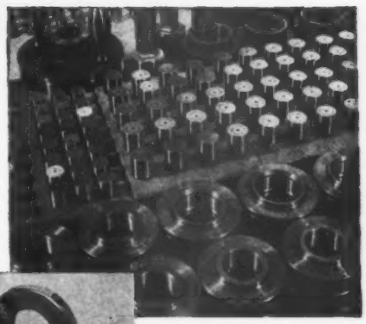
FRUEHAUF TRAILERS — A TRUCK IS LIKE A HORSE — IT CAN *PULL* MORE THAN IT CAN CARRY — *"Engineered Transportation"* REG. U.S. PAT. OFF.

PRECISION is our business

◆The name of Kobe is synonymous with precision because precision is our business. In the production of Kobe Master and Reference Gages, every approach to improved manufacturing methods and processes is investigated and checked for practical application to Kobe production principles. Exhaustive laboratory analysis . . . the development of special machines and tools . . . master gaging by special instruments, some of them accurate to ten-millionths of an inch . . . constantly controlled conditions of temperature and humidity and highly trained technicians are all fundamental to Kobe operations.

Matchless production facilities, the result of accelerated and war-stimulated requirements, will be the basis for important new Kobe gaging refinements for American peacetime industry. Get the Kobe story before you buy any gage. It isn't too early to write and place your name on the Kobe mailing list now.

KOBE PRECISION GAGES—Kobe Master and Reference Gages are available in ring, plug and special types, most standard type gages being available from stock.



A few of the many types of Kobe Master and Reference Gages now being manufactured in quantity in Kobe's new controlled atmosphere plant.

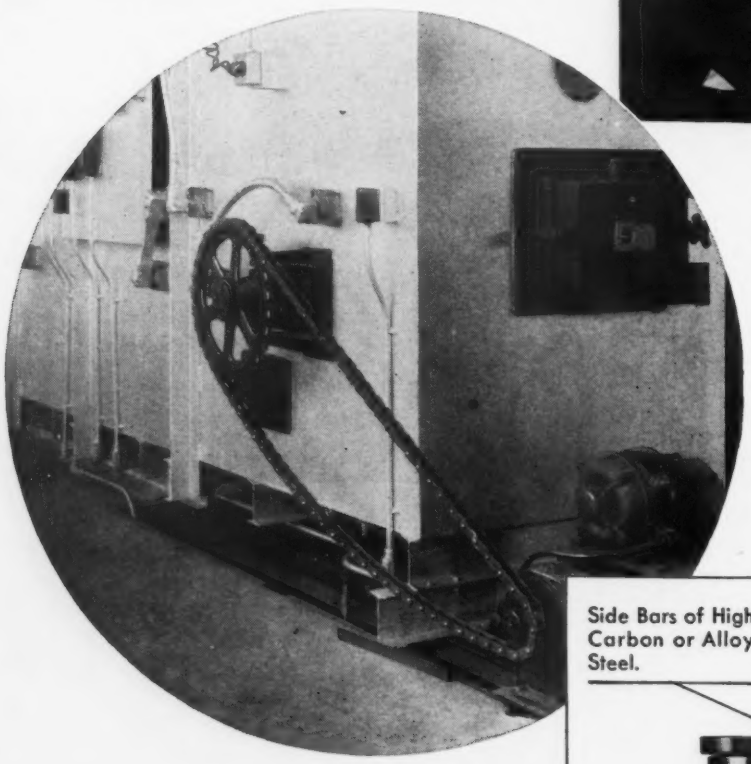
KOBE

Master and Reference GAGES

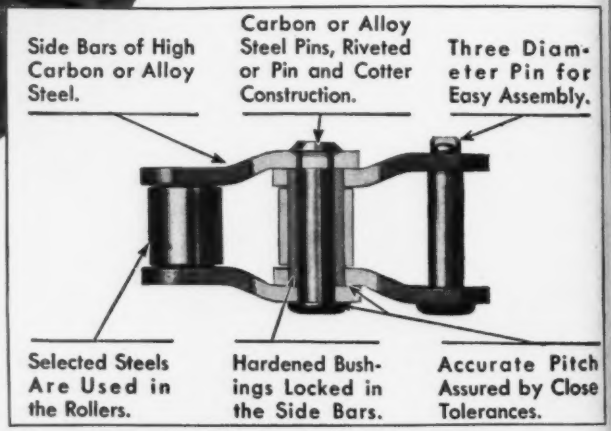
KOBE, INCORPORATED
3040 East Slauson Avenue • Huntington Park, California

NEED A CHAIN FOR *HEAVY LOADS?*

① HERE'S A CHAIN that's designed for extra heavy, extra tough service . . . Rex Chabelco Steel chain belt . . . the chain that can take up the burden of handling your heavy loads . . . more efficiently.



② THIS STURDY STEEL CHAIN transmits smooth, positive power under the heaviest load conditions. On this electric furnace, for example, it drives the conveyor that carries a steady flow of metal parts through the furnace. Accurate timing and unfailing power transmission are of vital importance here. Heavy loads, shocks, tough operating conditions are all in the day's work for Rex Chabelco.


Side Bars of High Carbon or Alloy Steel.
Carbon or Alloy Steel Pins, Riveted or Pin and Cotter Construction.
Three Diameter Pin for Easy Assembly.
Selected Steels Are Used in the Rollers.
Hardened Bushings Locked in the Side Bars.
Accurate Pitch Assured by Close Tolerances.

③ WHAT MAKES IT SO GOOD! Just look at this cross-section view of a Chabelco link. Note particularly the three-diameter pin. See how its milled flat end is locked in the side bar. Notice the offset side bar construction. Heavy force-fits of precision-machined parts assure the finest quality chains. That's why it is used for handling heavy loads and positive power transmission.

* * *

Rex Chabelco Steel chain belts are the answer to drive and conveyor problems where strength and long life are essential. The Rex Man will help you with your chain belt application problems. And for engineering data on Rex Chain belts, ask for the 768-page catalog, No. 444. Chain Belt Company, 1723 West Bruce Street, Milwaukee 4, Wisconsin.

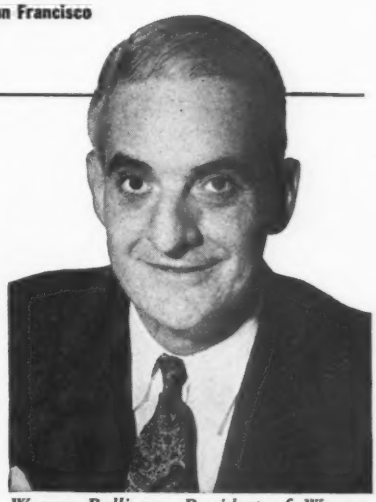
REX **CHAIN BELTS**

Manufactured in every available type for positive transmission of power, timing of operations and conveying of materials

CHAIN BELT COMPANY OF MILWAUKEE

Rex Chain Belt and Transmission Division, Rex Conveyor and Process Equipment Division, Milwaukee 4, Wisconsin • Baldwin-Duckworth Division, Springfield 2, Massachusetts

"White Super Power and White Personalized Service —a team that can't be beaten!"—Warren Ballinger, San Francisco



Warren Ballinger, President of Warren Ballinger Drayage, San Francisco, Calif., well-known trucking executive.

Warren Ballinger, one of the best-known truck operators in the San Francisco Bay Area, has been a White truck operator for over 20 years. He purchased his first Super Power model in 1941. Today as he looks at the record tonnage of his White fleet and his twenty-four hour a day war time schedules, he has the proof "that White Super Power and White Personalized Service are a team that can not be beaten!"

Mr. Ballinger will tell you that in times such as these there is no substitute for White Personalized Service. "It's the most comprehensive service program ever conceived!"

White Personalized Service is an extra plus of White ownership . . . available to help you keep your White trucks running efficiently and longer. Your local White Service Station has the skilled mechanics, special equipment and Personalized Service material to put the Plan to work for you . . . regardless of where your service work is done.

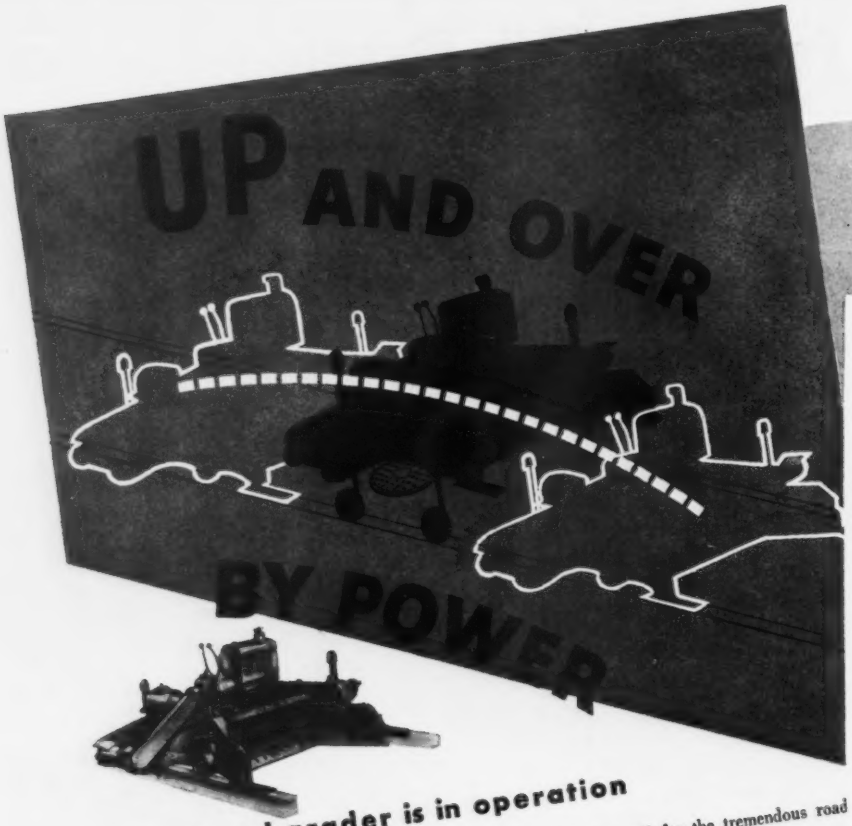
THE WHITE MOTOR COMPANY • CLEVELAND

Pacific Coast Branches and Dealers in all the important cities

A limited number of new Super Power Whites is now in production for essential services. Your White representative will be glad to help you make application.

White PERSONALIZED SERVICE

FOR MORE THAN 45 YEARS THE GREATEST NAME IN TRUCKS



—while subgrader is in operation

Meet a manhole, culvert, or other obstruction in the subgrade with a STANDARD-LEWIS Subgrader and all you do is throw a single hand lever forward (while subgrader is in operation) and up it goes quickly to clear the obstruction. A simple, balanced cable hoist does the trick in a matter of seconds! This and many other exclusive features (some patented) makes the STANDARD-LEWIS Subgrader a "must" for the tremendous road building programs that are shaping up.

But get the whole story of this really amazing machine. Send now for the new 8-page folder.

OTHER STANDARD PRODUCTS
ASPHALT PLANTS • BATCHING PLANTS • ASPHALT FINISHERS
CONCRETE FINISHERS • LOADERS • ROLLERS • POWER BROOMS

STANDARD
STEEL CORPORATION
General Offices and Plant: 5001 South Boyle Avenue
Los Angeles 11, California
Distributors Throughout United States and Canada

PLANNED
PREPARED
PLACED BY

Someday advertising, too, will come marching home to put on civilian clothes again. When it does, what will happen to your business? To whom will you sell your products or services? The McCarty Company is not an organization of psychics. But we have had 25 years' experience solving these and similar problems for the west's greatest and most progressive industries. Maybe we can help you to contact future business.

Standard Steel Corporation has been in business in Los Angeles more than 20 years manufacturing an excellent line of time tested paving equipment.

For the past two years, we have been directing the advertising activities of this company to interested audiences both in the United States and Canada, with a resultant noticeable increase of Standard Steel equipment on American and Canadian government projects for war.

This 2-color, page advertisement, now appearing in leading trade journals in the two countries, was developed to acquaint the trade with the many exclusive, patented features of Standard Steel production which will be available to them after the termination of hostilities.

Vividly it illustrates how a unique device in art treatment, clever use of color, unusual manipulation of type and informative news-copy can create and hold reader interest.

THE McCARTY COMPANY

A Complete Industrial Advertising Service Since 1919

LOS ANGELES 15, BENDIX BUILDING • SAN FRANCISCO 5, RIALTO BUILDING
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MEMBER...AMERICAN ASSOCIATION OF ADVERTISING AGENCIES

Efficient, High-Capacity Handling with LINK-BELT BELT CONVEYORS

YOU can be assured of maximum belt life, minimum power and maintenance cost, and dependable trouble-free service with Link-Belt Anti-Friction Belt Conveyor Idlers and other equipment.

Link-Belt engineers pioneered in the development of anti-friction belt conveyor idlers and have consistently improved the original, fundamental design—the grease seal, bearing adjustment, shaft mounting and the supporting stands and brackets. All with the result that today's Link-Belt designs offer the very best in belt conveyor equipment to keep production "On the Move" for Victory.

LINK-BELT COMPANY

Pacific Division

Seattle 4, 820 First Ave., S.; Portland 9, 1637 N. W. 14th Ave.; San Francisco 24, 400 Paul Ave.; Los Angeles 33, 361 S. Anderson St.; Oakland 7, 1025 Harrison St.; Spokane 8, S. 151 Lincoln St.

Link-Belt inclined and horizontal belt conveyor handling sulphur at Washington mill. Material is discharged to storage bins by means of a simply-designed movable plow shown in the illustration above.

V-BELT DRIVES

FROM STOCK

LINK-BELT

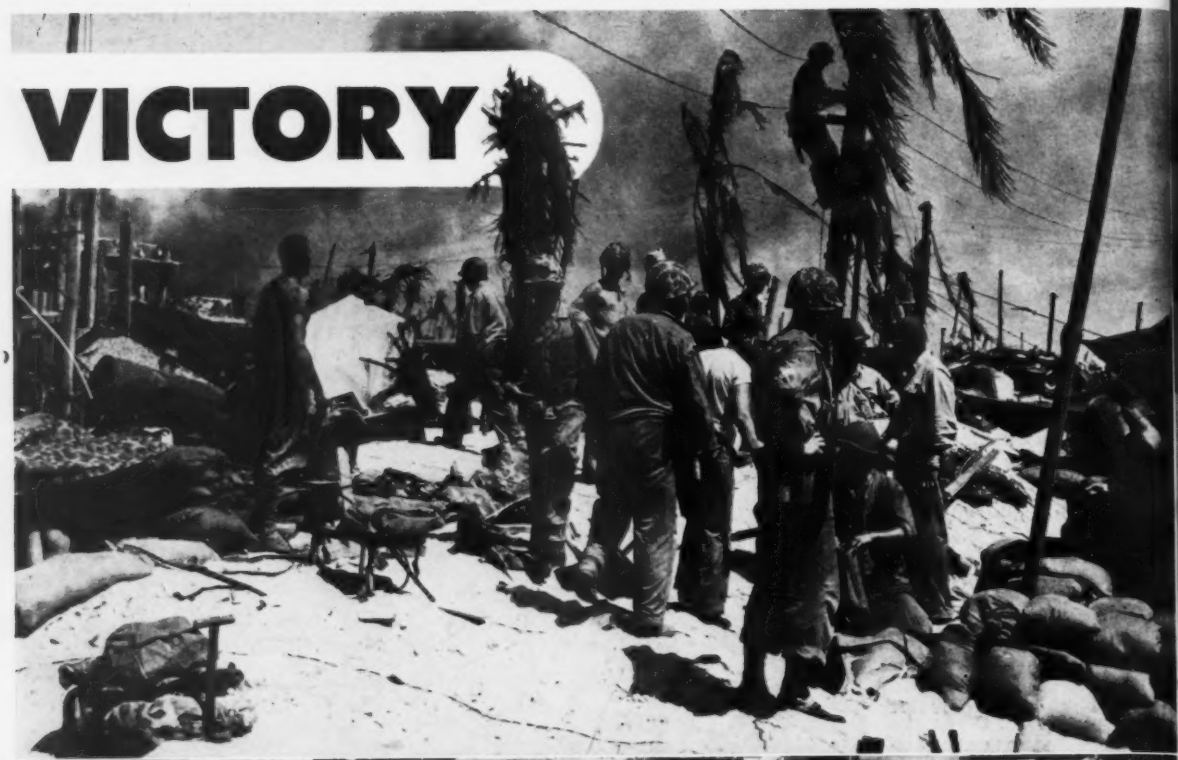
BELT CONVEYOR EQUIPMENT

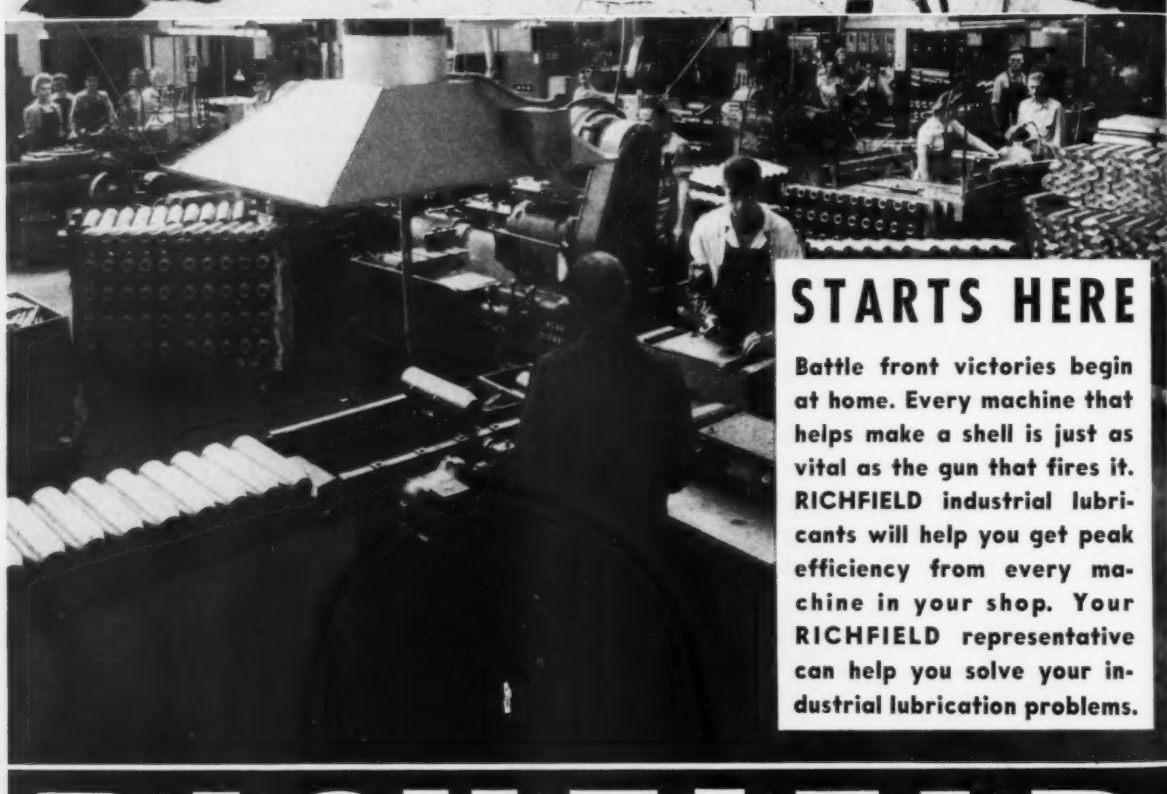
IDLERS • TRIPPERS • BELTS • PULLEYS • BEARINGS • DRIVES

2065-P

OTHER LINK-BELT PRODUCTS INCLUDE: Chains and attachments of malleable iron, Promal and steel . . . Silverlink Roller Chains and Sprockets . . . Log Hauls . . . Slasher Table Chains . . . Conveyors to and from barking drums . . . Chains for suspending and driving barking drums . . . Sorting Table Conveyors . . . Chip, Chemical and Refuse Conveyors . . . Log Stackers . . . Hogged Fuel Handling Equipment . . . Skip Hoists . . . Conveyors of all types . . . Automatic Underfeed Screw-type Stokers . . . Portable Conveyors, Loaders and Unloaders . . . Vibrating Screens . . . Water-Intake Screens . . . Roto-Louvre Heat Dryers and Coolers . . . Screen type Dryers . . . Car Spotters . . . Sprockets . . . Gears . . . Pulleys . . . Couplings . . . Clutches . . . Ball, Roller and Babbitted Bearings . . . Grease Cups . . . Safety Collars . . . Base Plates . . . Shafting . . . Paper Roll Handling Equipment . . . Special Machinery, etc. Catalogs sent on request.

VICTORY





STARTS HERE

Battle front victories begin at home. Every machine that helps make a shell is just as vital as the gun that fires it. RICHFIELD industrial lubricants will help you get peak efficiency from every machine in your shop. Your RICHFIELD representative can help you solve your industrial lubrication problems.

RICHFIELD

Spotlight on the NEWS

WESTERN INDUSTRY
FOR FEBRUARY, 1945

VOLUME X NUMBER 2

Meeting the War Demands

Tougher, harder days than anything seen before are ahead on the war production front. Consequently, for the assistance and guidance of industry, we begin in this issue (pages 27-30) a series of articles dealing with various aspects of the production situation in the West. While manpower supposedly has been under control ever since the Byrnes Directive set up the West Coast Manpower Program in the fall of 1943, there have been many big loopholes. Shipyards have made their own surveys of manpower needs and the Maritime Commission has backed them up, but from now on apparently they will not be able to get away with the tremendous wastage of manpower that has prevailed in the past. Ditto for aircraft establishments and other offenders in greater or less degree all down the line.

Postwar Export Picture

The West looks hopefully toward the Far East as a big postwar customer. Oddly enough, Japan was our biggest customer before the war, and probably will be again (pages 31-33), but probably our B-29's will have beaten enough sense into her, by destroying the Yawata iron furnaces, so that she will realize she was better off to buy pig iron from us than to make it herself. Some of that tonnage will come from the Western steel mills, and our new industrialization means that we are less likely to lose out than in the days when return cargoes swung the business in favor of the Atlantic Seaboard ports. Some of the other factors in the situation will also be different from prewar days.

Industry on the Run

Industry certainly has an inferiority complex when it comes to union contracts, and is not much more than a glorified doormat in dealing with the representatives of labor. The basic reason seems to be that it has a defeatist attitude, according to an industrial relations consultant who has outlined (page 40) what could be done if management attacked the problem from a positive basis, instead of a negative approach. Incidentally, a good example of what a drift policy leads to is given in the report (page 64) on some recent decisions of the Tenth Regional War Labor Board in San Francisco, where the so-called public members generally side in with the labor members and industry takes an alarming and ominous beating.

The Eternal Geneva

What to do about the Geneva steel mill is going to be the theme song for the meeting of the newly organized Western Regional Council at Salt Lake City February 12-13. It was originally planned to have the session mainly an occasion to work out policies and a general program for this new body, and the article in the January issue of *Western Industry* about the Congressional situation indicates that what is needed most of all is Western unity and understanding. But the ODT's rule against industry or association meetings of more than 50 people made it impossible to get the desired attendance for that sort of meeting. So the Western Regional Council, which was the first all-western organization to come into being, may wither up without ever getting started. Whether the people who do foregather at Salt Lake City will get anywhere on the steel question remains to be seen.

Plant Maintenance

As an added service to our readers, *Western Industry* begins this month a department devoted to plant maintenance, in which will be featured what western plants are doing along that line. In this issue is described the system of recapping bomber tires at the San Bernardino Army Air Base and some additional information on welding stainless steel tanks, supplementing a discussion in the December issue.

Vehicle Remanufacturing

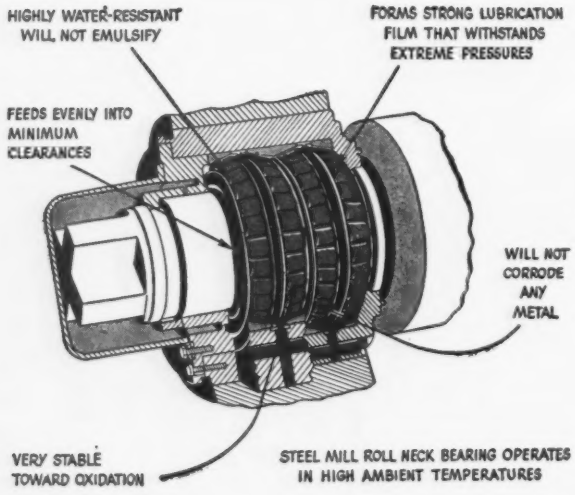
An example of what the army is doing to rebuild automotive equipment on a production line basis, which the Ford Motor Company has been championing for some ten years under its "engine exchange" plan, is described in the story of the Mt. Rainier Ordnance Depot at Fort Lewis, Washington (pages 34-35). A few civilian establishments in the country, of which Don Neher in Oakland was the only one on the Pacific Coast, had been rebuilding engines in this manner before the war, but the experience the army has gained in doing the entire overhaul job at one time instead of piecemeal may mean a vast change in the postwar used car situation.

Better Days at Washington

The West's position in the new Congress that convened last month has been considerably improved, because it has greater representation on committees important to the West's economy, and this is due in considerable measure to the forceful presentation of our previous position published in the January issue of *Western Industry*. A reprint of this article was sent to as many of our readers and others in the West as time and manpower permitted, asking them to get busy immediately and urge their Senators and Representatives to get themselves lined up for such committees. Arnold Kruckman, our Washington editor, reports that the resulting encouragement from many sources inspired the Western delegation to make further demands for themselves, with excellent results (page 37). An article in the February issue (page 36) by W. G. Herron, who furnished the maps and information for the presentation in our January issue, shows how the problem of Western Representation would be settled permanently if the proposed streamlining of Congress provided for regional representation on Congressional committees.

STANDARD ENGINEERS NOTEBOOK

Lubrication of anti-friction bearings under severe conditions


HIGHLY WATER-RESISTANT WILL NOT EMULSIFY
FORMS STRONG LUBRICATION FILM THAT WITHSTANDS EXTREME PRESSURES
FEEDS EVENLY INTO MINIMUM CLEARANCES
WILL NOT CORRODE ANY METAL
VERY STABLE TOWARD OXIDATION
STEEL MILL ROLL NECK BEARING OPERATES IN HIGH AMBIENT TEMPERATURES

Wherever heavy-duty, grease-type ball or roller bearings are subjected to high temperatures, extreme pressures or moisture, Calol E. P. Roller Grease will solve the severe lubrication problems.

Calol E. P. Roller Grease is made from heavy bodied oil and special soap wherein are incorporated extreme pressure additives. It is very cohesive and stable, lubricates satisfactorily under bearing operating temperatures up to 225°F. It provides a tough lubricant film that withstands pressures far higher than other greases used on heavy-duty anti-friction bearings.

Fully moisture resistant, it resists oxidation, is non-corrosive to any bearing, and handles easily in pressure systems, even at low temperatures.

Calol E. P. Roller Grease was originally developed for steel mill operations. It is used with complete satisfaction in these mills on roll neck bearings, which carry huge loads in high temperatures.

High-grade pale engine oils have many uses in industry

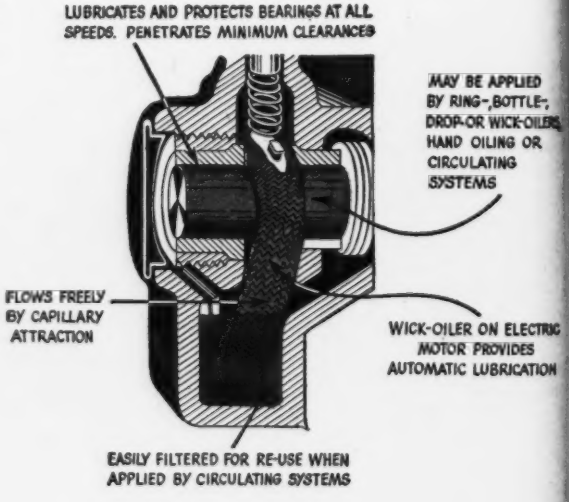
Calol Engine Oils have been used successfully for years by engineers to meet varying lubrication conditions in many different mills and factories.

These oils are solvent refined and are always uniform. They are straight mineral oils, pale in color and exceptionally stable in use.

Calol Engine Oils may be applied by all types of oilers. The heavier grades may be used in circulating systems in which oil is filtered and re-used.

Their low pour points assure a controlled flow of oil to bearings and easy handling in cold weather.

Calol Engine Oils come in three grades: 5, extremely light in body, is recommended for high-speed spindles and ring-oiled electric motors in sub-zero temperatures; 8 and 10 are recommended for bearings on steam engines, generators, motors and other high grade machinery lubricated by ring-, bottle-, drop-feed-, or wick-feed oilers, or by hand. They can also be applied by circulating systems.


LUBRICATES AND PROTECTS BEARINGS AT ALL SPEEDS. PENETRATES MINIMUM CLEARANCES
MAY BE APPLIED BY RING-, BOTTLE-, DROP-OR WICK-OILERS, HAND OILING OR CIRCULATING SYSTEMS
FLOWS FREELY BY CAPILLARY ATTRACTION
WICK-OILER ON ELECTRIC MOTOR PROVIDES AUTOMATIC LUBRICATION
EASILY FILTERED FOR RE-USE WHEN APPLIED BY CIRCULATING SYSTEMS

Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help — make your maintenance job easier. Call your Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

STANDARD OF CALIFORNIA

WAR DEMANDS ON THE WEST FOR 1945 WILL BE TOUGHER

Industry Will Have to Recast Many of Its Operating Methods in Order To Meet Pressure of Inexorable Requirements with Existing Facilities

(First of a series of articles dealing with war production situations in the West)

TO MEET the war's demands in the West in 1945, industry will have to put forth even greater efforts than before. Not only as the springboard from which the armed forces "throw the book" at Japan, but also to supply renewed demands for the European theatre of war.

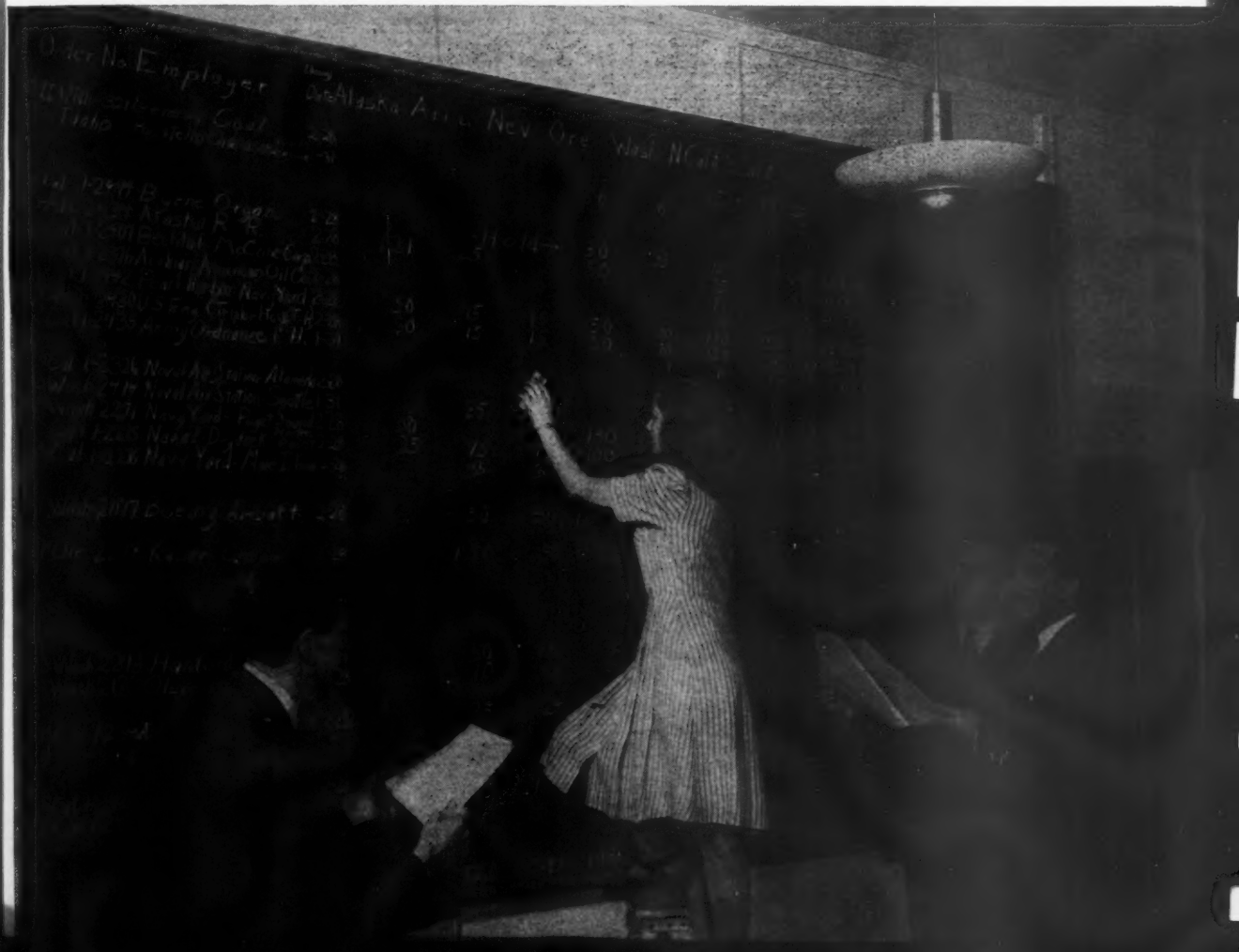
The job must be done under heavier handicaps. No longer can we look outside the area to the major source of manpower supply. The West must largely do with what it has already, perhaps with even less if the draft demands increase.

In various other ways the pressure will be felt. Railroad facilities will be taxed far beyond anything yet experienced. New calls for war materials will present new problems to be solved.

As an aid to industrialists in planning to meet these various conditions, *Western Industry* begins in this issue a series of reports from governmental authorities and procurement agencies. These are intended to give a clearer picture of the situation and some of the obstacles that may be encountered, and to offer suggestions as to how they may be overcome as far as possible.

The first two, in this issue, deal with manpower and freight transportation, and the sources of the information presented are the War Manpower Commission and the Office of Defense Transportation.

• Checking off manpower supply for "must" projects on master blackboard of Regional War Manpower Commission, San Francisco. From left: N. H. Lueck, placement specialist; Miss Margaret Schilling; P. M. Kenefick, reg. chief of placement; F. W. Hunter, reg. director.



WAR DEMANDS *(Contd. from page 27)*

Manpower Case

By F. W. Hunter, Pacific Coast Regional Director, War Manpower Commission

ONE hundred and nineteen thousand men and women workers to be supplied for the "must" war projects on the West Coast in the first two months of this year. Only 13,000 of them to be brought in from other regions, because the West Coast area has just about reached the saturation point in accommodations for in-migrant workers as well as for industrial expansion under a wartime economy.

There is the current manpower problem in a nutshell, and no single answer to it can be found except redistribution of the labor supply. To make this task successful involves constant cooperation by the entire community to utilize every human to the utmost.

Yet now the pressure of both the Pacific and European war becomes greater, and each procurement agency or industrial executive in charge of high priority project is dead certain that the whole war effort hangs on that one enterprise. To co-ordinate these demands is the task of the War Manpower Commission and the United States Employment Service.

A third agency, the U. S. Civil Service Commission, has the responsibility for placing tens of thousands of civilian workers employed in the military and naval establishments on the West Coast.

In all, there are upwards of 100 critical industries for which a supply of labor must be obtained, ranging from the top-priority of the national military and naval projects to the consistent worker shortages reported from railroads, shipping, carg loading, warehousing, and such vital se vices as laundering, food, and local tra portation.

Employment in the West has decrea about 200,000 from the peak of Augu 1943, for various reasons. Some of t labor force is no longer in the region, d to workers going back to farms or old jo but how great this exodus has been th apparently is no way to determine.

Some workers have gone into agric ture or less essential industries, or c barked in small enterprises of their ow Others who are over-age are permanent out of the picture, and others were n competent and had to be released by th employers.

The most constant drain of all on t manpower supply, however, appears to the requirements of the armed forces. N so much is heard today about the dra but the calls of the draft boards contin

Nevertheless, there has been a gain

IDEAS FOR MAKING AVAILABLE MANPOWER GO FARTHER AND FINISH THE WAR SOONER

1. **For Management:** Notify War Manpower Commission or U. S. Employment Service immediately, or in advance, of any proposed lay-offs, for if the workers cannot be switched to another department in the same plant, they may then be referred to another critical war job.
2. Double check "exit interviews," especially with skilled workers, to ascertain causes for leaving, and then follow through for remedies in your own plant.
3. Let the draft board know whenever an employee leaves without a clearance.
4. When new hires quit after two or three days, find out whether they are broke and need money too badly to wait until the regular payday.
5. Ascertain whether quits leave because they feel conditions in your plant are too hazardous. You may need more safety facilities. Jobs are too plentiful for a man to risk his life or limb unnecessarily.
6. Study the feeding system. Inconvenient and unsuitable eating places are one of the prime causes of transfer. Ditto on restrooms and other worker services. Use in-plant check or questionnaire.
7. See that the share-the-ride system is utilized to the utmost. Standing on street corners while crowded street cars and buses pass without stopping takes the edge off any man's eagerness to work.
8. Review plant facilities for possible increase in women workers, or installation of equipment making women workers employable.
9. Keep your supervisors and foremen constantly checking to see that employees are assigned to the right kind of jobs. It will increase your manhour output.
10. Make inquiries at War Manpower Commission or U. S. Employment Service offices regarding future outlook fo labor replacements, and for advisory aid in reducin turnover and introduction of operating plan for hold ing war workers on the job.

1. **For Labor:** Review carefully all points outlined for man agement above.
2. Support or recommend progressive action in the instal lation of facilities or programs that will interest th worker on the job and effectively reduce turnover ab senteeism.
3. Labor representatives should also assist in telling th workers that they are producing high urgency war prod ucts—and to encourage their maximum interest in doing a full day's work.
4. Cooperate in settling problems of inter-plant transfer of workers or production schedules called for on an emergency basis.
5. Labor leaders may also take a part in stimulating com munity action that will provide additional housing transportation, shopping or health facilities needed t meet heavy demands of war workers.

For the Community: Coordination of federal, stat and local government agencies is essential in the pro vision of adequate housing, transportation, eating, shop ping, health and medical aid, and recreational facilitie to give the war worker and his family a reasonabl background of comfortable living conditions under wa time conditions.

• Heat treating shells at Kaiser factory at Fontana, which Chairman Krug of WPB says will be twice as big as world's present largest.

employment in the establishments producing the items of highest urgency, and separations are decreaesing. The increase in total employment in the 24 top ranking projects for December was 5,300, or about 1.3 per cent.

The critical "must" projects fall into three classes. In Class 1 include:

(1) B-29 Super-Fortresses at Seattle.
(2) New assault ship and pontoon contract production at Portland.
(3) Expanded ship repair requirements in the San Francisco Bay area.
(4) Tires for aircraft and heavy-duty military and civilian vehicles at Los Angeles.
(5) Two important munitions depots in Nevada.
(6) Accelerated activity in ordnance repair and aircraft component production in Arizona.
(7) Rocket and shell production at Los Angeles and Las Vegas, Nev.
(8) Shells at the Kaiser plant at Fontana, California, programmed to be the largest shell production operation in the world.
(9) Fuses at Riverbank, California.

In Class II are emergency projects, such as the Port Chicago explosion.

Class III includes the privately operated war plants, such as shipyards, aircraft factories and the sub-contractors who supply parts. To get a work order for a production urgency rating of III, the following requirements must be met:

1. It must be demonstrated that production is behind schedule or threatens to become so immediately, specifically because of manpower shortage.

2. The order must represent minimum hiring specifications—an undue percentage of rejections of applicants is sufficient reason for cancelling the priority;

3. The order must represent workers who can actually be put to work immediately—lack of housing or in-plant training facilities or restrictive hiring practices may be cause for cancelling priorities;

4. All qualified workers in plant must have been transferred from non-must to must production;

5. Full utilization of existing workers must have been made and training practices must be adequate, as evidenced by spot check.

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Workers in all plants in Classes I and III are required to obtain clearances and certificates of availability from the U.S.E.S., and more drastic restrictions will be placed on discharging workers for cause. Because of the general belief last fall that the war was approaching an end, there was a tendency to be more critical in hiring and to discharge for less important reasons than will now be possible under the war situation which we face today.

The combined support of management and labor is also being sought to speed the application of manpower utilization surveys, which "put the right worker on the right job" to step up production and reduce turnover. The West Coast WMC has already applied these surveys to more than 1,100 plants with recommendations that have been instrumental in cutting thousands of man-hours and similar amounts in

WAR DEMANDS (Contd. from page 27)

Manpower Case

By F. W. Hunter, Pacific Coast Regional Director, War Manpower Commission

ONE hundred and nineteen thousand men and women workers to be supplied for the "must" war projects on the West Coast in the first two months of this year. Only 13,000 of them to be brought in from other regions, because the West Coast area has just about reached the saturation point in accommodations for in-migrant workers as well as for industrial expansion under a wartime economy.

There is the current manpower problem in a nutshell, and no single answer to it can be found except redistribution of the labor supply. To make this task successful involves constant cooperation by the entire community to utilize every human to the utmost.

Yet now the pressure of both the Pacific and European war becomes greater, and each procurement agency or industrial executive in charge of high priority project is dead certain that the whole war effort hangs on that one enterprise. To co-ordinate these demands is the task of the War Manpower Commission and the United States Employment Service.

A third agency, the U. S. Civil Service Commission, has the responsibility for placing tens of thousands of civilian workers employed in the military and naval establishments on the West Coast.

In all, there are upwards of 100 critical industries for which a supply of labor must be obtained, ranging from the top-priority of the national military and naval projects to the consistent worker shortages reported from railroads, shipping, cargo loading, warehousing, and such vital services as laundering, food, and local transportation.

Employment in the West has decreased about 200,000 from the peak of August 1943, for various reasons. Some of the labor force is no longer in the region, due to workers going back to farms or old jobs but how great this exodus has been there apparently is no way to determine.

Some workers have gone into agriculture or less essential industries, or embarked in small enterprises of their own. Others who are over-age are permanently out of the picture, and others were not competent and had to be released by their employers.

The most constant drain of all on the manpower supply, however, appears to be the requirements of the armed forces. Not so much is heard today about the draft but the calls of the draft boards continue.

Nevertheless, there has been a gain in

IDEAS FOR MAKING AVAILABLE MANPOWER GO FARTHER AND FINISH THE WAR SOONER

1. **For Management:** Notify War Manpower Commission or U. S. Employment Service immediately, or in advance, of any proposed lay-offs, for if the workers cannot be switched to another department in the same plant, they may then be referred to another critical war job.
2. Double check "exit interviews," especially with skilled workers, to ascertain causes for leaving, and then follow through for remedies in your own plant.
3. Let the draft board know whenever an employee leaves without a clearance.
4. When new hires quit after two or three days, find out whether they are broke and need money too badly to wait until the regular payday.
5. Ascertain whether quits leave because they feel conditions in your plant are too hazardous. You may need more safety facilities. Jobs are too plentiful for a man to risk his life or limb unnecessarily.
6. Study the feeding system. Inconvenient and unsuitable eating places are one of the prime causes of transfer. Ditto on restrooms and other worker services. Use in-plant check or questionnaire.
7. See that the share-the-ride system is utilized to the utmost. Standing on street corners while crowded street cars and buses pass without stopping takes the edge off any man's eagerness to work.
8. Review plant facilities for possible increase in women workers, or installation of equipment making women workers employable.
9. Keep your supervisors and foremen constantly checking to see that employees are assigned to the right kind of jobs. It will increase your manhour output.
10. Make inquiries at War Manpower Commission or U. S. Employment Service offices regarding future outlook for labor replacements, and for advisory aid in reducing turnover and introduction of operating plan for holding war workers on the job.

1. **For Labor:** Review carefully all points outlined for management above.
2. Support or recommend progressive action in the installation of facilities or programs that will interest the worker on the job and effectively reduce turnover absenteeism.
3. Labor representatives should also assist in telling the workers that they are producing high urgency war products—and to encourage their maximum interest in doing a full day's work.
4. Cooperate in settling problems of inter-plant transfers of workers or production schedules called for on an emergency basis.
5. Labor leaders may also take a part in stimulating community action that will provide additional housing, transportation, shopping or health facilities needed to meet heavy demands of war workers.

For the Community: Coordination of federal, state and local government agencies is essential in the provision of adequate housing, transportation, eating, shopping, health and medical aid, and recreational facilities to give the war worker and his family a reasonable background of comfortable living conditions under wartime conditions.

dollar-values from the production sched-

dependable than has been the movement

event an embargo should be found nece

• Heat treating shells at Kaiser factory at Fontana, which Chairman Krug of WPB says will be twice as big as world's present largest.

employment in the establishments producing the items of highest urgency, and separations are decreasing. The increase in total employment in the 24 top ranking projects for December was 5,300, or about 1.3 per cent.

The critical "must" projects fall into three classes. In Class 1 include:

(1) B-29 Super-Fortresses at Seattle.
(2) New assault ship and pontoon contract production at Portland.
(3) Expanded ship repair requirements in the San Francisco Bay area.
(4) Tires for aircraft and heavy-duty military and civilian vehicles at Los Angeles.
(5) Two important munitions depots in Nevada.
(6) Accelerated activity in ordnance repair and aircraft component production in Arizona.
(7) Rocket and shell production at Los Angeles and Las Vegas, Nev.
(8) Shells at the Kaiser plant at Fontana, California, programmed to be the largest shell production operation in the world.
(9) Fuses at Riverbank, California.

In Class II are emergency projects, such as the Port Chicago explosion.

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To cite one instance, a state-wide foundry survey which covered 80 foundry establishments was made in the state of Washington. Utilization survey findings indicated that up to 15 per cent additional tonnage of castings could be produced with a more carefully planned allocation of contracts to more fully utilize existing available foundry capacity and without any increase in the currently employed foundry labor force. The foundry manpower situation in Washington has definitely eased as a result of this survey.

Civic governments and community leaders are also being called upon to appeal to citizens for voluntary registration on a war job, as well as to conduct campaigns that will improve housing, transportation and other facilities that keep the war worker on the job.

Railroad Freight

By W. F. Kirk, Western Director, Railway Dept., Office of Defense Transp., and Agent, Interstate Commerce Commission

IN MAKING suggestions that may be helpful to all concerned to meet the full impact of the railroad movement to the West Coast, I have no desire to be considered as critical of any of the past performances.

The peak movement for the year 1943 occurred in October, when an average of 3893 loads moved daily into Washington, Oregon and California; this dropped to 3829 loads per day in July, 1944, but has increased to 4717 loads per day for the 15-day period ending November 15, 1944. In successfully handling this increase, the road movement has been more current and dependable than has been the movement within the destination terminals.

In general, the off-shore movement has kept pace with the increased arrivals and the safety bank of off-shore traffic has been so controlled that it has not caused any serious concern.

EDITOR'S NOTE: Mr. Kirk is the man who "sits in the slot" at Chicago for the Western railroads, the ODT and the ICC, having a bird's-eye view of where all the freight cars headed for the Pacific Coast are going. His authority as an ICC agent enables him to divert traffic from one line where there is a peak to another that is temporarily not so crowded. Diverted traffic if taking longer routes is not delayed thereby, but instead reaches its destination sooner than if it had to wait on the original route for the peak ahead of it to be smoothed out.

There is no question but what additional manpower can be used. That situation, according to information reaching me, has remained the same for some time. If the recruitments are not reaching the necessary requirements, it remains that other means of securing full utilization of facilities and full productivity of available manpower must be found.

In the main, the carriers on their own, and in some instances with governmental assistance, have increased their terminal capacity to meet the present load, while track capacity for serving the shippers and receivers has not kept pace with the increase in traffic volume, and as a result increased switching service has been necessary.

Too much credence has been placed in the rumors of an embargo, which has caused a departure from the orderly manner of doing business and which in turn has brought more cars into the terminals than could be promptly placed or unloaded. An orderly system of notification, as well as handling, has been set up in the event an embargo should be found necessary. I hope that will never occur, but in my opinion the terminal situation will continue to be the main factor that would necessitate it.

Some of the western carriers due to the heavy traffic volume have, in order to accelerate train movement, arranged to block the cars to the maximum for the farthest destination on their respective lines, thereby avoiding switching and incidental delay at intermediate terminals. As this method of operation grows, many advantages to the shippers, receivers and carriers will result.

Some of the western carriers have arranged in their terminals a system of zoning their industrial territory to permit the classification of inbound cars at inland terminals, which has the effect of minimizing use of electric man-hours and switch engine hours in locating and promptly moving cars to their final unloading point.

I am not unmindful of the fact that in the past, due to the competitive urge on the part of the carriers and business interests, some practices have come about that were of no great concern during peace times but, with the increased traffic volume, are now burdensome under war transportation conditions.

The removal of some of these practices should be helpful, and if a survey were made in a cooperative manner between the carriers, shippers and receivers, it is possible that many of them, which provide some small advantages could be discontinued, which would relieve the present burden. With that thought only in mind, I offer the accompanying suggestions.

It would be a tragedy after the remarkable performance of the shippers, receivers and carriers to have an embargo placed against the West Coast area, and later develop that full utilization and full productivity of the available facilities and manpower had not been secured.

UTILIZE THESE SEVEN SUGGESTIONS TO HELP EASE THE WESTBOUND TRAFFIC PEAK

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FOR new developments in postwar foreign trade, many Western industrial eyes are peering hopefully toward the Far East, an area which took more than half of our prewar West Coast exports. The possibilities seem to hinge on six main factors:

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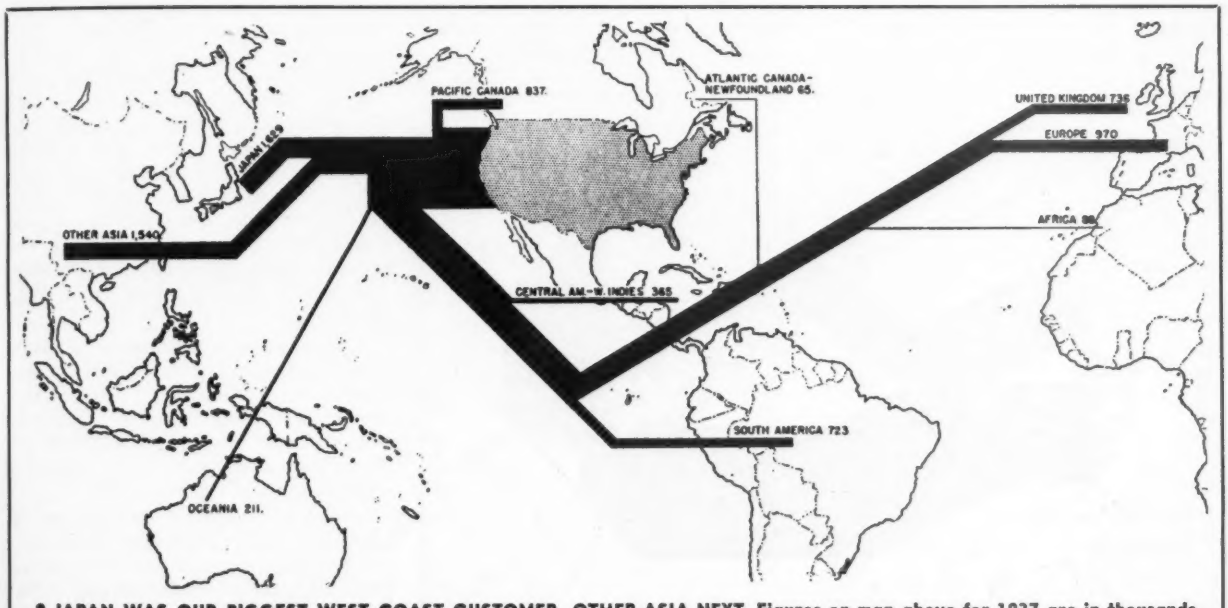
The Philippines are due to be an important market, because the United States government is understood to be getting ready to pay the Philippine government



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Area	*Exports*	*Imports*
Total, all areas	401,429	222,417
South America	14,519	26,580
Central America and West Indies	26,425	17,212
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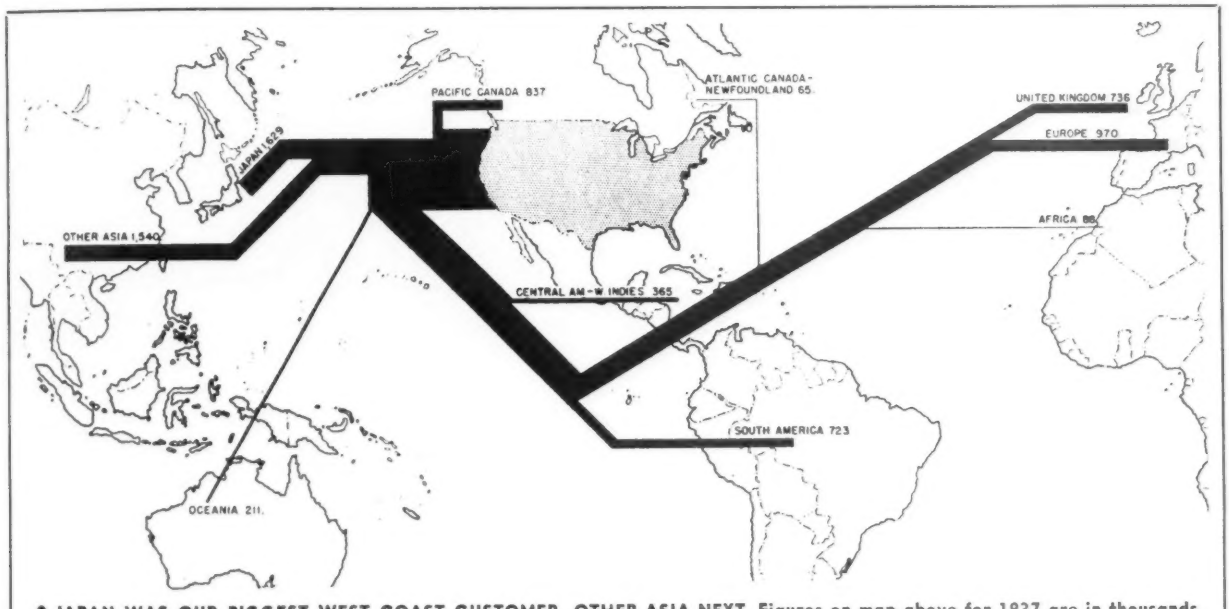

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$500 million after the Japanese are cleared out, to compensate for war damages.

Among the other possible developments in the Far East two are outstanding: (1) big sales of used locomotives, steel rails, road building equipment, and other prefabricated steel products in China, which in turn will empty the domestic market so that there will be a big home demand for new equipment; (2) replacing of two-thirds of Asia's ship tonnage lost in the war by outmoded steamships from the United States.

Atlantic Seaboard Competition — The return cargo is a potent factor in determining the flow of foreign trade, and the disadvantage under which Pacific Coast ports suffer in comparison with Atlantic ports is well exemplified in the history of silk imports from Japan in past years. When the price of silk was high, steamers took the shorter Great Circle route to Seattle, where the merchandise was transferred to special silk trains which rushed the silk to the Atlantic Coast. As the price of silk went down, however, it took the longer and slower route through the Panama Canal because of the need of getting return cargo.

War-time industrialization of the Western states, however, will lessen this disadvantage materially, because the area has so much more to offer in fabricated products than ever before. Machinery is one important item, and oil well supply manufacturers in southern California, for example, are looking forward to busy times in re-equipping the oil fields of the East Indies.

Government Control — Perhaps the greatest factor of all in the Far East export situation may be something entirely new as far as the United States is concerned, namely, government-controlled foreign trade. In the offing lies the possibility of a giant United States trading corporation, which would take over exporting and importing, like Russia's Amtorg.

Postwar Volume Estimated — August Maffry of the Department of Commerce, who submitted a report at the McCarran Committee hearing in San Francisco in November and also spoke at foreign trade meetings there and in Los Angeles, said the Department calculates that imports into the United States, under prosperous domestic postwar conditions, would run to approximately $6 billion in terms of 1942 prices. This would support a volume of exports estimated at $7 billion, the difference of $1 billion representing net purchases of services from foreigners and a nominal amount of new foreign investment. The normal West Coast share of a $7 billion export business would be $85[illegible] million.

"Assuming that imports could be increased by $1 billion through tariff reduction," he said, "exports would increase by about the same amount and the West Coast might expect to get an additional $100 million or so of export business.

"Total exports from the United States might be increased by perhaps another $2 billion through a well-rounded foreign investment program, including such institutional aids to foreign investment as the International Bank for Reconstruction and Development and an enlarged Export-Import Bank.

"All things considered, total exports of $10 billion are possible under favorable conditions at home and abroad. If such a level of exports could be achieved, the West Coast might expect to enjoy an export trade between three and four times as large as it was before the war."

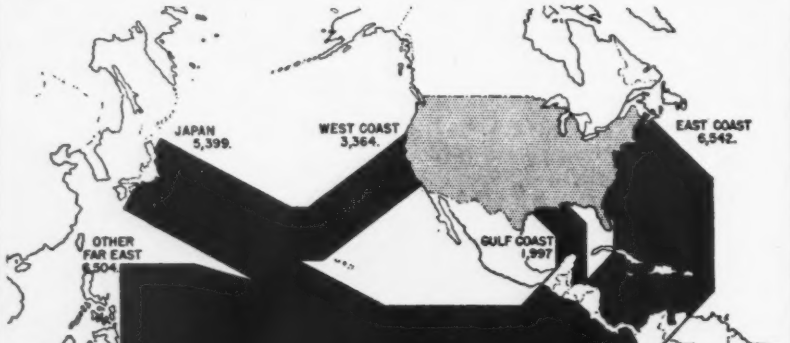
For the West Coast program, Mr. Maffry suggested the following:

1. Every effort should be made to develop specialized export products in which labor cost is high relative to material costs, which are distinctive in character, and which may be sold on a quality rather than a price basis. An example might be taken from the domestic trade. California sportswear has become preeminent in its field. The industry has the natural advantage of a large year-round local market. Its product is distinctive in design and of excellent quality. The result is that buyers from all parts of the country now include a trip to California in their market schedules. The industry is growing rapidly and providing a steadily increasing amount of employment.

2. The export of services as well as of commodities should be promoted in every possible way. It should be noted in this connection that the motion picture industry is the largest "export" industry on the West Coast, although its product-royalties is not included in export statistics.

3. Carefully planned development of seaports and airports should be undertaken as a means of increasing the employment provided by the movement *through* Pacific ports of export products originating in other parts of the country and of import products destined for other parts of the country. Needless to say, such development should be planned upon the basis of exhaustive studies of the flow of goods out of and into these parts.

4. Encouragement should be given to the establishment and growth of distribution facilities for imported products consumed in the West Coast area. Imported products in increasing quantities can be graded, labeled, and packaged on the West Coast for distribution to the considerably larger markets created by the influx of population during the war.



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	Total shipments	*Atlantic ports*	*Gulf ports*	*Pacific ports*
Exports:				
Total to Far East	627,432	349,032	74,090	204,310
To Japan	283,803	114,001	58,040	111,762
To other Far East	343,629	235,031	16,050	92,548
Imports:				
Total from Far East	951,298	781,865	48,396	121,037
From Japan	183,171	153,094	1,761	28,316
From other Far East	768,127	628,771	46,635	92,721

• Dredges based on California experience revolutioned tin mining in Malaya. Equipment shown above was shipped about 14 years ago by Yuba Mfg. Co. from its factory at Benicia, California. Had 13½ cu. ft. buckets in its line, and dug 100 feet below water level.

In the Far East

By Clayton D. Carus, Professor of Foreign Trade, University of Southern California

WE may expect tin and rubber to be reduced in volume, but only moderately. Tin will be hardest hit, because we have learned to make one pound of it do the work formerly performed by three. But meantime, a whole new category of uses for tin has been created in the field of alloys.

Raw silk will come back into its own as the second most valuable item in intra-Pacific trade, thanks to the extraordinary alternative uses developed for nylon and other substitutes for silk. Crude rubber will continue to make our inner tubes, bind tire carcasses together and provide the breaker strip upon which to apply the synthetic tread. Then, in good time it will be combined with synthetic rubber to provide that soundless cushion for concrete highways which has so long been an objective of highway engineers.

To the above will be added, as a permanent feature of trade, transactions in used mechanisms. I confidently predict enormous and continuous sales of used steel rails, flat cars, box car chassis and locomotives; of steel cables, steel chains, and a wide variety of used road-building equipment. All these will be shipped from the U. S., and will, in turn, provide an enormous home market for newly built products of like character.

Of almost equal importance will be the sales to the Far East of declassed sea-going vessels. Southeast Asia has always been a continuous market for outmoded steamers of moderate tonnage, presenting to a shipowner a market superior to the scrap pile.

Almost two-thirds of Asia's ship tonnage rests on the ocean floor, and, which is highly important, much of that loss cannot be replaced in a generation except by the second-hand product, for reasons of time and expense. Whether we like it or not, outmoded naval craft will be sold to China, independent Korea and the Philippines; perhaps even to the Netherlands Indies.

Some comment concerning internal development of Far Eastern nations appears pertinent to this discussion. One profound change will occur in Japan: It will cease making pig iron from ore, and will, at worst, buy pig iron and steel scrap to make steel ingots; at best, it will buy ingots and start its steel operations at that point.

We shall want the Japs to continue their steel industry after the war, for they have long demonstrated their capacity to turn out steel products of small dimensions of which bicycles is a good example, to supply that large segment of the world's population having low incomes with metal products which they could never buy otherwise.

The choice is rarely: Shall I buy a British bicycle or a Jap one, but shall I buy a Jap bicycle or no bicycle? For low quality but high money's worth gadgets, the Japs lead most nations, and if they are to improve their living levels they must specialize in such production and abandon for all time most forms of heavy industry.

A significant activity in the past or future of intra-Pacific foreign trade is that so-called invisible trade represented by a merchant marine. I confidently expect to see Japan return to its third place world position in the course of the next thirty years, but it is certain the United Nations will restrict the stem to stern measurement of Jap built merchant ships to 100 meters or less, so that conversion to naval purposes will be ineffective and difficult.

Merchant ship operations is one of the very few activities in which Japan has an absolute advantage. Most of her industries operate on the principal of least disadvantage, for nature has been niggardly indeed as respects material endowments of the homeland. By use of her ships she made additions to her national income of 200 million dollars annually, which provided a huge reserve of purchasing power to be expended in foreign trade.

Chinese industrialization will not proceed rapidly or extensively in this century. She will continue, of course, to extend her textile and fabric composite in the coastal areas. I wish her industrial growth could be both rapid and comprehensive. I wish it, not merely for reasons of sympathy or war reaction, but because it would lift Chinese living levels immeasurably, and thereby give it a place in international trade somewhat comparable to her population.

• Engines in storage, brought back for rebuilding, awaiting processing in shop.

Production Lin For Engine Re

WHEN the decision was made to expand the peace-time Army of approximately 175,000 into a war-time force whose ultimate size was indeterminate, this expanded Army had to be provided with additional mechanized equipment for firepower and transportation.

It was determined that major repairs would be accomplished by the replacement of worn and damaged parts through the medium of exchange of a complete assembly or sub-assembly rather than by extensive field repairs. The Army decided to rebuild these units to exact standards on a production line basis in order to provide an ample supply of exchange units and assemblies. The third plant to be set up under this plan in the United States was established at the Mt. Rainier Ordnance Depot, Fort Lewis, Washington.

To follow this plan out, it was necessary to develop some means of rebuilding to as near new condition as possible all the major unit assemblies and sub-assemblies. To conserve as much of the old material and to assist in operating with as little skilled manpower as possible, assembly line production methods as used by large automotive plants were adopted, enabling the individual mechanic to specialize in a certain operation or job rather than to have a general all-around mechanical knowledge, thus increasing his efficiency and production output.

One of the major problems was the l cation of the shop, Mt. Rainier Ordnan Service Command being some 15 mil from Tacoma and an equal distance fr Olympia, making the housing and tra portation problem very critical. Since t housing project was built in this area, the two conditions have been somewhat alle iated.

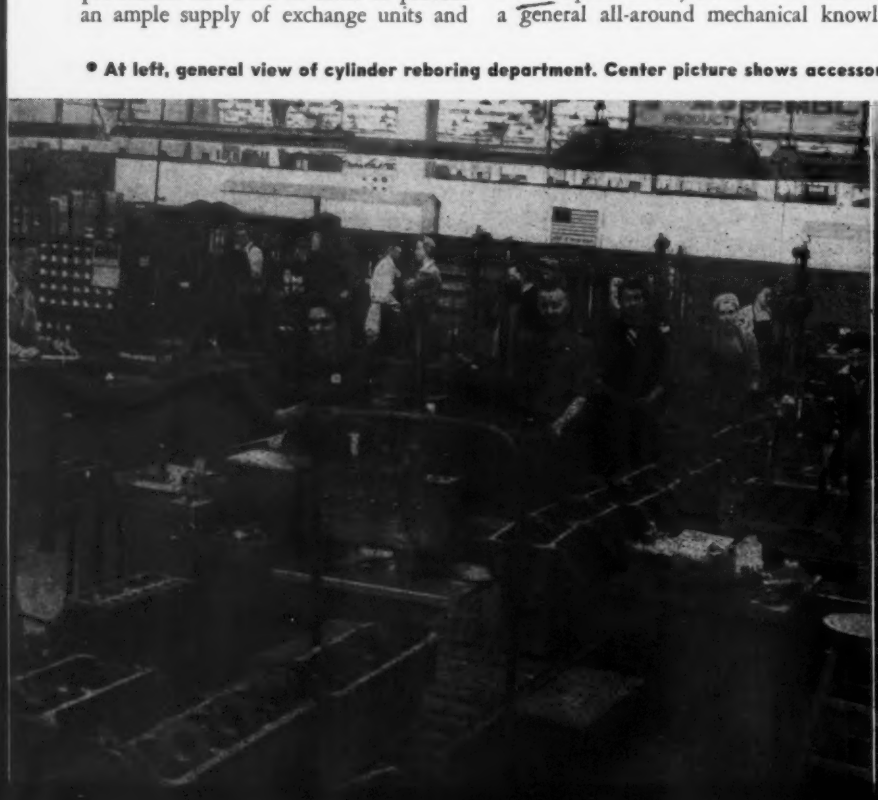
To obtain experienced personnel, ca able of taking over factory producti methods, an extensive recruiting campai was inaugurated, obtaining people fro as far as 200 miles away. Many of the are now foremen or occupy key positio

The first women were used on lig assembly work because of the restrictio on their lifting ability. However, becau of the critical manpower shortage and t loss of men to the armed forces, it w necessary that they be given added respo sibility and more difficult mechanical wor

To make this possible, special tools an power handling equipment were deve oped and manufactured in the Mt. Rainie shop. To prepare them for these assig ments, special technical schools were s up, and the first group was sent to L Angeles. Later, with the cooperation o local educational authorities, a similar a rangement was established in the loc Clover Park High School.

Special instructions were given in th operation of the boring bar, piston grind er, other machine work and assembly op erations. To simulate actual shop co

• At left, general view of cylinder reboring department. Center picture shows accessories being installed in final assembly section.



Line Used Rebuilding

ditions, a small assembly line was installed.

To illustrate the procedure the various steps in the processing of an engine will be outlined. First, it is entirely dismantled so that the component parts lose their individual identity with the exception of the main bearing caps that remain attached to the cylinder block. The component parts are forwarded to the appropriate sub-section for unit rebuilding, after which they are returned to the stock bins along the assembly line for use.

The cylinder block is then carefully cleaned in hot tanks of caustic solution. It is inspected for water leaks. With precision instruments it is checked to select the proper size for the reboring operation which follows.

Each piston is individually fit according to the prescribed standards. Semi-finished pistons are used where necessary and ground to the proper size.

The main bearings are then installed, inspected for size and alignment, and line-bored where necessary.

Crankshafts, after being cleaned, are forwarded to the grinding department where the main and connecting rod journals are checked and reground where necessary. Then the crankshafts are fitted according to prescribed tolerances.

All connecting rods are checked for out-of-round, piston pin bushings are fitted, pistons and connecting rods are then assembled, and the fitting of connecting rod bearings follows.

Piston rings are fitted, and the piston and connecting rod assembly is then installed in the cylinder block.

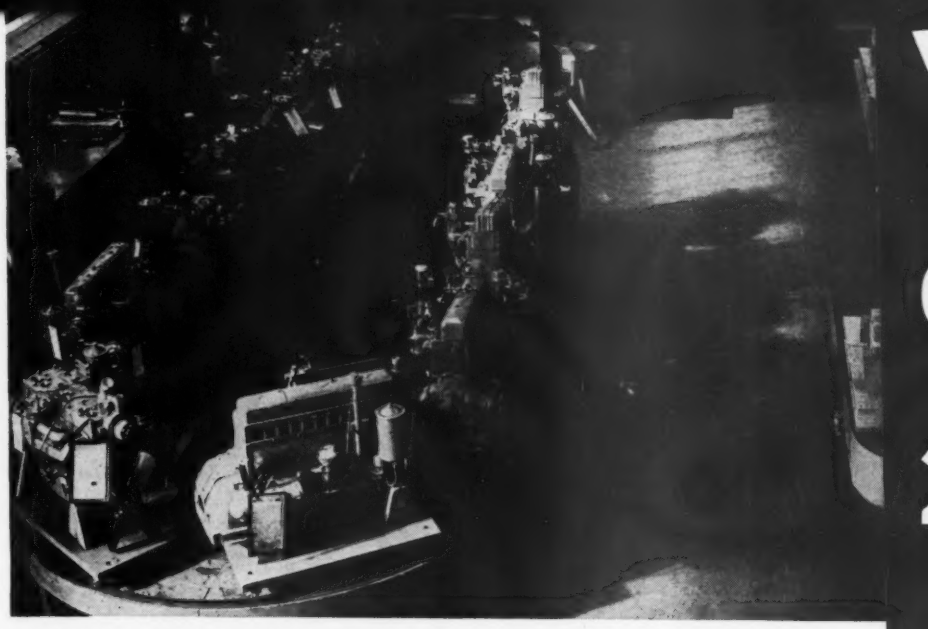
The cylinder block continues along the assembly line where the external accessories and cylinder head are put on, including the flywheel, oil pan, timing gears and chain, and manifolds.

At this point, the engine is completed and ready to be run. The test and "run in" is made in the dynamometer room and usually takes from two to five hours, depending on the type of engine. During this "run in" period it is completely tested for vacuum, compression, heat temperature and performance. Necessary adjustments to tappets and setting of the timing are made.

When the engine is accepted, the inspector puts his "O.K." on it by stamping his number on a special plate that has been installed showing size of the cylinder bore, main and crankshaft journals, the job order number and the date.

Similar methods are used in the rebuilding of other major unit assemblies such as transmissions, transfer cases, front and rear axles, and steering gear assemblies. This also includes all sub-assemblies used in the rebuilding of major unit assemblies, such as carburetors, generators, distributors, and fuel pumps.

Production on engines has increased from less than 20 in August, 1942, to more than 1,000 per month at the present time.



• **Final overhaul step. Tested engines travel by conveyor through paint room.**

• **Below at right may be seen a portion of the final assembly section. After engines are completed they are given final "run in" testing.**

The West's Aggressive Fight Committee Selections Give

ANOTHER example of what the West can do when it acts unitedly has come to pass.

Because the Western delegation in Congress put up a big fight to get more representation on the committees that will shape the West's industrial destiny, the critical situation described in the leading article in the January issue of *Western Industry* has been alleviated somewhat.

In the 79th Congress that convened in January, the West has obtained some important committee posts, although the Westerners failed to get representation on the House Rules Committee, the citadel that the East and South hold so tightly in their grasp. They would have stood a good chance if the move to enlarge the size of the Rules Committee from 12 members to 16 had been successful.

The Westerners in Congress have been feeling for some time the need for getting more recognition, and were greatly encouraged by the support they received from their constituents. The latter evidently are beginning to realize that the government has become a dominant factor in industry and that accordingly the West must be well enough represented on the committees that will make the decisions that vitally affect the West's future.

Here are some of the gains on the committees:

House. Naval Affairs: Havenner (D), California, De Lacy (D), Washington. Merchant Marine: Patterson (D) and McDonough (R), both from California. Military Affairs: Holifield (D), California. War Claims: Engle (D), California, made chairman, Patterson (D), California.

Senate. Agriculture: Downey (D), California. Banking and Currency: Taylor (D), Idaho, McFarland (D), Arizona. Naval Affairs: Magnuson (D), Washington.

The House Ways and Means and Appropriations status is unchanged, with King (D) and Gearhart (R) from California representing the West on the former and Sheppard (D), California, Coffee (D), Washington, Dworshak (R), Idaho on the latter. House Banking and Currency, West loses one, Outland (D), California, succeeds Ford, California, when latter was defeated, no one from West appointed to fill place of Rolph (R), California (defeated). The West also lost one seat on the Senate Appropriations Committee through the retirement of Holman, Oregon.

Some of the comments on the *Western Industry* article in the January issue are as follows:

John H. Tolan, Congressman, 7th California District: "Since the new members of Congress have returned we have been meeting daily trying to accomplish the very thing you set out so intelligently in your letter. We are going to get representation of the Pacific Coast Congressmen on every large major committee and to that end we are going to make a joint effort."

W. D. B. Dodson, Washington representative, Portland Chamber of Commerce: "We have been working very hard in this direction. In our conferences among representatives of the Pacific Coast organizations we try to aid our respective states in getting best possible positions on good committees. Your arguments are very sound."

E. W. Daniel, president Harbor Plywood Corp., Hoquiam, Wash.: "Have just studied your excellent article 'Congressional Situation Endangers West's Future.' Congratulations. I suggest you consider preparing comprehensive rewrite of the article with mats of illustrations and maps for newspaper use and sending same to every newspaper and union paper in the eleven Western states. Newspaper use of the article would broaden the appeal for cooperation."

H. W. Howe, industrial engineer, Southern California Edison Co.: "Copies of Mr. Herron's article discussed and distributed at the Industrial Development Committee meeting of the Los Angeles Chamber of Commerce. This was well received, and, no doubt, will get some cooperation from this group. I intend to present this to the Industrial Committee of the Harbor Chambers of Commerce next meeting."

Robert W. Kenny, attorney general of California: "I think this is a very dramatic and challenging presentation of conditions which vitally affect everyone interested in the future of our Western economy. You are certainly to be commended for calling attention to the need for action on this matter, and I hope that your treatment of the story will result in widespread support for the efforts of legislators who have been trying to improve this situation."

Western Industry's part in the fight t get greater Western representation o Congressional committees is as follows:

The serious under-representation of th West on Congressional committees impo tant to its economy was revealed to We ern readers by W. G. Herron, Washingto D.C. business representative and publi relations consultant, for the first time detail in an article appearing in the Janua issue.

This was furnished *Western Industry* December as a patriotic contribution stimulate united Western efforts to im prove our Congressional representati affecting both our war-time operation and potential postwar economy.

Western Industry, fearful of possib delivery delay of the regular issue, mail preprints of Mr. Herron's startling artic in mid-December to leaders of indust and business throughout the West.

The editor enclosed a letter suggesti immediate consultation with Weste members of the House and Senate, hon for the holidays, to urge them to dema the representation to which the West entitled.

Meanwhile, Mr. Herron personally a dressed meetings of business leaders at S Lake, Los Angeles, San Francisco, Oakla and Seattle, explaining by charts the Co gressional situation affecting Western dustry, banking, agriculture, transportati and labor in those committees dealing wi Western economy.

Many letters were received stating th constituents were conferring with or wr ing their members, who in turn commu cated with Representatives Cecil Kin Democrat, and Bertrand (Bud) Gearha Republican, only Western members on t Ways and Means Committee. This acts the House Committee on Committees.

Both these members are entitled to gr

Louis B. Lundborg, general manage San Francisco Chamber of Commer "The need for the West to have repr sentation on key Congressional committe is indeed urgent, and you are to be co gratulated upon the grand job you ha done of making this situation clear. As y know, the San Francisco Chamber of Co merce is vitally interested in this matt and is cooperating to the fullest possib extent in seeing that something is do about it."

Frederick E. Baker, Seattle: "Your e forts to obtain more substantial represe tation from the West strikes an extreme responsive chord with me—in fact, I ha been working on this myself for seve years. . . . I am sure that your efforts coordinate the activities of business leade in the Western states will bear some frui

Wins Recognition in Congress Better Industrial Protection

credit for the results obtained, with the encouragement of their Western colleagues, the success of which may be judged by the following reports of our Washington editor, Arnold Kruckman:

"King secured more important assignments for (Democratic) Westerners than any other state or region; Gearhart has done equally well in placing and keeping Western (Republican) members on important committees.

"In my opinion . . . the West now has strong representation on the most important committees in Congress, in fact the strongest in Congressional history. Effectiveness now depends solely upon force and character of men and women themselves, and frequency with which those worthy are re-elected.

"Frequent shifts weakens committee representation. Expertness in specific committee work is derived from training and seasoned experience in affairs of specific committees.

"Voorhis, as chairman of special committee made a fine fight for Western representation on Rules. Denied when committee was reduced in size.

"You may legitimately claim your preprint (of Mr. Herron's January article, 'Congressional Situation Endangers West's Future') came uncannily at exact time to stir entire delegation from West to demand resulting representations."

Representatives King and Gearhart; the Western Senators who pressed their Senate steering committee; the state delegations led by Congressman Lea; senior Representatives of the West; state and local leaders of both parties; representatives of chambers of commerce, agricultural and other organizations both in Washington and in the West—all these gave evidence of what the West can really do whenever it unites again in another cooperative effort!

C. F. Backstrand, Backstrand Brothers Electric Motor Works, Riverside, Calif.: "I have just written a letter to our Congressman from this district, Hon. John Phillips, urging him to do all possible to obtain proper representation on key committees which will be of help to the Western part of the United States. I am also taking the matter up with the chairman of our Riverside County Republican Committee."

Gus P. Backman, secretary, Salt Lake City Chamber of Commerce: "It certainly is a most enlightening article and you are to be congratulated on the presentation. It should really develop a great deal of thought among the Western people."

H. F. Jefferson, supervising engineer, Nettleton Timber Company, Seattle: "We would like to compliment you on the manner in which you are calling attention to the importance to our industries in this area of the membership on key Congressional committees."

Howard N. Yates, manager, Colorado Springs Chamber of Commerce: "We have done as suggested in your letter of December 22 and contacted the chairmen of the state central committees of both parties as well as our delegation in Congress."

N. H. Engle, director, Bureau of Business Research, University of Washington: "There is no doubt that you are emphasizing a most important problem and one which has been neglected for entirely too long by the people of the West. . . . The trouble with people in the West has been failure to understand the machinery of government in Washington, and a failure, as a result, to select able representatives and senators and then continue to re-elect them year after year. The strong control which the South has over most committees in Congress grows out of the fact that they have returned their congressmen and senators year after year, and because of the seniority rule of congressional committees their representatives occupy positions of great power. What you are advocating is the first step toward the correction of the oversight on the part of the Western people to see to it that our men are placed on committees of importance to this region."

E. G. Harlan, secretary, Boise Chamber of Commerce: "We shall write our delegation and contact both party headquarters here and get busy on this important matter."

Walter S. Johnson, president, American Box Corporation, San Francisco (letter addressed to California congressmen): "We sincerely hope that you, representing our state, will make all effort possible to be placed upon the principal committees that involve matters of the greatest importance to us all. We recognize fully that there is bound to be a struggle between the East and the West Coast for predominance in industrial activities and future developments, and we can see plainly that the Congressmen selected for these various committees will be in the best position to do his constituents the greatest good."

A. H. Abel, manager, Port of Oakland: "I am impressed with the article and in order to bring this matter to the attention of the board of Port Commissioners, I would greatly appreciate receiving five additional copies of the preprint."

Robert A. Cooper, secretary, Plastic Die & Tool Corp., Los Angeles: "May I offer my sincere congratulations for your fight on behalf of Western representation on Congressional committees. This situation presents a severe problem for us here in the West and you deserve the gratitude of Western industry for your alertness in calling attention to the seriousness of the situation."

R. H. Faxon, secretary, Raton (New Mexico) Chamber of Commerce: "There is point to your complaint. The great West is woefully short of certain committee representation in Congress. There is one reply to that—the West does not keep its men, whether of the one party or the other, in service as does the East, New England and the South. That failure to do so destroys the inevitable and fully defensible rule of seniority."

K. C. Grant, Grant & Bruner, engineers and architects, Los Angeles: "I know Mr. W. G. Herron and have heard him give an outline of this serious inadequacy before a committee of the Los Angeles Chamber of Commerce. And I think it is an excellent thing that you are giving this matter more publicity."

George B. Buckley, acting manager, Southern California Chapter, Associated General Contractors: "I am not entirely unfamiliar with Mr. Herron's work, as he showed me some of his material and charts many months ago. It struck me at the time as being a most valuable contribution to our thinking in the West. Congratulations on taking up this subject and giving it publicity."

S. O. Johnson, The Twin Pines Co., Berkeley: "We fully agree with you as to the importance of getting proper representation of the West in Congress."

Wayne Leland, House and Leland, Portland: "I wish to congratulate you on such a constructive, worthwhile and timely article. In fact, we are so much impressed by it that I would like to send a copy to each of our industrial clients."

Steller-Millar, Los Angeles: "We are very much interested in this advance printing. We will do all we can to stimulate action on this matter."

Management Can Negotiate A Favorable Labor Contract

By F. D. WALLACE
Industrial Relations Engineer,
Los Angeles

THE prevailing opinion seems to be that for management to negotiate a favorable contract with the union would require a minor miracle.

Once the union catches up to the company, the story goes, the battle is lost. The National Labor Relations Board sinks the hook. The union field organizer plays the poor fish. And the business agent brings it to gaff. It's just a matter of time.

This is not a very encouraging view of American business, generally considered so powerful and ingenious, but the results all too often seem to bear it out. The law requires employers to bargain collectively with their employees or their representatives. The law does not require that employers make a poor bargain. And it is doubtful that anybody anticipated unions winning by default.

The reason so many companies find themselves saddled with unfavorable labor contracts is fundamentally the same reason that any contest is lost. One party enters unprepared, uninformed, and untrained, leaving the outcome to chance. The other party is well prepared, completely informed, and expertly trained, and he knows that nobody is going to do his winning for him. This is true whether you are playing bridge for 1/20 of a cent, negotiating a labor contract affecting the future of a business, or waging total war involving the future of the world.

If, before every labor contract negotiation, you could talk to representatives of both sides, you would find no great mystery as to the outcome in most cases. The company's negotiator is probably just somebody along the line in the organization in whom the management can place its trust. Or, if the company had its "fingers burned" on a previous labor contract, the Big Boss himself will undertake to meet with the union negotiator.

There may be an attorney for the company at hand, a man who knows his law from Abstracts and Briefs clear through to Zoning restrictions and back up the line to Constitutionality. But the odds are about ten to one that none of the company's representatives have had more than a passing experience with one or two labor contract negotiations—if, in truth, they have had any practical experience at all.

Generally, the management has no real idea of what points it wants to gain from the union when they sit down together. Indeed, many companies seem not to realize that anything constructive or favorable to them can be written into the contract. They come into the meeting on the defensive, waiting to hear the union's demands, and considering themselves successful if most or any of these demands can be held off. They make a "deal" with the union—which usually consists of trading one union demand for another—and think that something has been accomplished. The idea of making some demands for the company does not occur to them.

On the union side, however, you can see quite a different picture. This representative probably has things fairly well in hand. In the first place, he is an expert in his work, and he spends 52 weeks a year on just this one job. He knows what he wants, and he knows what he is willing to trade in order to get it. He knows how far the union members will back him up in his dealings. And most important of all, he has the facts and figures to support what he says.

The union negotiator probably has had no formal legal training. But he knows what he wants to have in the contract. The only time he needs a lawyer is when the final draft of the contract is prepared, to see that all the necessary formalities have been observed.

What the union negotiator lacks in training in the legal niceties, he makes up for with a brief case bulging with information about community wages, the company's past practices, the concessions won by the union from this company's competitors, turnover rates, and a thousand other pertinent items. He probably knows what every man in the company is doing, how much he is making, and whether he is satisfied with the job.

All this information could be prepared by the company, and more easily, too. The company has records that any union agent would give his right hand to obtain, and the local businessman's associations are more than willing to supply whatever else is needed. But as things progress, all too often the company's negotiator discovers that the information he needs is still in the files and would take several days to compile. In the meantime, the union has the ball and is running for a touchdown.

But what information will be needed, and how should it be presented? There is no stock answer to this question, as any experienced negotiator can tell you. Much depends on the individual situation: on what the company is going to demand from the union, and what the union is likely to demand from the company.

This latter point is of the highest importance. It is not impossible to anticipate the union's demands. Do this: (1) Keep track of what the local union has demanded from other companies. (2) Keep in mind the points that the union lost during the last contract negotiation and those points on which they compromised so reluctantly. (3) Keep a record on what the parent union has been saying and doing. (4) Look back over the grievances of the last few months and find out what the commonest complaints have been.

Your own records, your local businessmen's associations, and your neighboring companies should supply you with more than enough ammunition and information.

And as for presenting your case, there is only one rule to follow. Have the com-

(Continued on Page 40)

Storm Warnings

Some of the consequences of a drift policy on the part of employers show up in startling fashion in recent decisions of the Tenth Regional War Labor Board at San Francisco. Here are a few:

(1) Board ordered a night shift differential in a cannery case, and when Stabilization Director Vinson found it would involve higher prices for the finished product, refused to approve it without detailed justification. Thereupon the Board sent back a reply . . . without the information Mr. Vinson asked for . . . and a few days later ordered a night shift differential in dried fruit packing houses on the ground that it was the practice in the canning industry!

(2) Board permitted a staff member closely affiliated with labor to serve as chairman of a panel without approval of either the labor or industry members and in violation of the rules of practice laid down by the National War Labor Board. Result? Chairman and labor members of the panel decided all the union's statements were right and all the employers' wrong.

(3) Board ordered a furniture factory in southern California to include in its first contract with a union a provision for a "health, hospital and physician's service plan" and to pay 60 per cent of the cost thereof.

(4) In the same case required the factory to send out any sub-contracted work to union shops only, "preferably the CIO."

(5) Contrary to policy of the National Board, ordered preferential clause for CIO to be inserted in the first contract drawn up involving citrus packing sheds in Tulare County.

(6) Granted a $10 a month night shift differential for nurses in Alameda County on the ground that the basic steel decision justified it, despite the fact that a night shift premium for nurses is not customary anywhere.

(A summary of the above cases will be found in the Labor section of this issue, pages 64-66.)

You really should launch one, Paul Revere!

Men never launch ships!

But if any man ever deserved the honor, it was Paul Revere. He created the copper industry of America for the service of the Navy. By this, he gave an impetus to our shipbuilding which has found its fullest fruition in the "bridge of ships" which we promised—and delivered.

Today, beneath the grim battleship gray of every warship and transport sliding down the ways, copper and its alloys are at work. On the bridge, in the galley, in the piping, in the engine room, in the turrets and their ammunition . . . almost always hidden beyond the reach of eyes, this vital metal performs the countless services on which the lives of men and the fate of battles often hang.

Much of this comes from Revere. It may well be that our long cooperation with the Navy since the days of the valiant Constitution has taught us to put an extra measure of skill, experience, hard work and testing into all our products. For their use seems to result frequently in greater savings, greater speed, greater security.

Naturally, our concentration on the war effort throughout these dark years has resulted in valuable developments. Many of these have application to all industry. They may mean products that will do *your* work better once victory is won. We welcome inquiries. Write to Revere Copper and Brass Incorporated, Executive Offices: 230 Park Avenue, New York 17, New York.

REVERE COPPER AND BRASS INCORPORATED

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FABRICATORS OF COPPER, BRASS, MAGNESIUM, ALUMINUM, BRONZE AND STEEL

LABOR CONTRACTS *(From Page 38)*

pany represented by a thoroughly trained negotiator. If he is a member of the organization, so much the better. It is almost always preferable for a company to carry the ball for itself. But if nobody in the firm has had the experience necessary for the job, there is no reason why the company cannot avail itself of expert labor relations counsel just as it retains legal counsel.

Experience, knowledge, and preparedness—these are the fundamentals for negotiating a favorable labor contract. The unions know this, and their record shows that they act accordingly. But many companies seem not to appreciate the situation, and this is the basic reason they so often get the short end of the deal.

There are other reasons why management loses out so often, but these are simply corollaries. Some companies, for example, have resisted the unions "to the bitter end," postponing the evil day as long as possible. Occasionally this works, but more often, if the union finds the company "stalling," that company is due to receive "special attention," the sort of attention that gives labor relations men gray hair. The unions don't expect to be received as long-lost brothers, but if they meet undue resistance there will be a gathering of the clans. The company will be faced with even more sizable forces of ability, brawn, and cash, sufficient to overcome even the best pre-negotiation preparation at times.

Or a poor contract may simply be caused by the fact that the preceding contract was poor. Once a company has given away most of its strongest points and received nothing in return, it has nothing left which is valuable enough in the union's eyes to warrant making a trade. One poorly negotiated contract may take years to overcome, no matter how well subsequent negotiations are carried on. If a company makes the wrong guess at first, there is seldom a chance to guess again.

And there is the contract which is thrown into dispute and taken to arbitration—only to come back almost unrecognizable. It makes no difference who the arbitrator is, it is usually preferable to use him only as a last resort. He may make a decision in the company's favor, or he may not. And if he doesn't, the company has lost a point without any possibility of getting a concession from the union in return.

In most cases, if the company's case is not strong enough to overcome the union demands during the bargaining stage, it is doubtful that the arbitrator can be convinced. Again, the vital factor is the strength with which the company's case has been prepared and presented.

In the final analysis, there is no reason in the world why a company should not be able to negotiate a favorable labor contract, a contract in which the union has to pull its side of the wagon.

Just take a leaf from the union's book: it has produced results for them. Figure out what you want in the contract, and prepare a case strong enough to put it there. Keep up to date on the moves of your union and be able to take the initiative when they come your direction. Avail yourself of competent, thoroughly experienced, and well-informed counsel before and during negotiations.

Too expensive? It would be worth twice the cost if it produces the results. And it will produce the results. The unions have not been winning so consistently just by accident. They win by good organization, hard work, careful planning, and keeping the services of experienced, well-trained men at their disposal.

And there is no patent on this formula.

• Scene at Anaconda Copper Mining Company, Anaconda, Montana. Copper anode is being lifted from the casting wheel. In the foreground is a "bosh" tank where the anode will be cooled before shipment is made to the electrolytic refinery for final purification.

Standard Dedicates 100-Octane Plant

The new $20 million 100-octane gasoline plant at Richmond, California, operated by the Standard Oil Company of California, was dedicated January 15.

Capacity of the new plant is enough to power 50 B-29s on a round trip from Saipan to Tokyo daily, making the facility one of the world's largest.

Direct access to tanker loading gives the new plant high strategic values. The central structure is the 238-foot catalytic cracking and treating unit. The bead catalyst process is used.

Three other major processes in the plant are the butane isomerization unit for producing a basic high octane blending unit; the hydrofluoric acid unit which takes isobutane and other light hydrocarbon fractions and synthesizes them into alkylate, and distillation equipment for rejection of normal pentane.

Standard is operating the plant under lease agreement with Defense Plant Corporation. Equipment process designing, with the exception of the catalytic cracker, was by California Research Corp., Standard subsidiary. The catalytic cracker was designed by Bechtel-McCone Corp., which engineered and constructed the plant.

Postwar Gas Appliances

Efforts of the Pacific Coast Gas Association to develop postwar appliances are being concentrated on the following five items:

1. A built-in hydraulic dishwasher.
2. A portable hydraulic dishwasher.
3. A counter height gas refrigerator with separate drawers instead of a single door for handier food storage and conservation of cold air.
4. A vented bathroom heater to more than meet the best competitive type heater for bathroom use.
5. A small gas fired clothes drier.

Cracking Unit

The world's largest single fluid catalytic cracking unit started operation at the Avon (California) Refinery of the Tide Water Associated Oil Company on December 29, 1944. This unit, which towers 200 feet in the air, has a charging capacity of over 750,000 gallons of gas oil per day and will produce raw materials and other products used in the manufacture of 100 octane fuel. Universal Oil Products Company is licensor of the process.

Army School Trains Lift Truck Drivers

"TEACH him what he needs to know, to do the job that must be done." This is the theme behind the course of instruction offered to the lift truck operators by the Training Section, Civilian Personnel Branch of the Army Transportation Corps, San Francisco Port of Embarkation, commanded by Brigadier General C. H. Kells.

This 16-hour course includes films, lectures, demonstration and participation. Approximately 60 per cent of the course is devoted to actual training while operating the vehicles. The course is required of all port operators of materials-handling equipment before they may be licensed.

The course is designed to familiarize the driver with the operation, construction and limitations of the fork-lift truck, jitney, tractor, and warehouse trailer. Special emphasis is placed on safety measures and methods of operation to prevent abuse of the vehicles.

In the part of the program devoted to operation, the driver is given thorough instruction in the regulations and procedures governing use of the vehicles, such as maximum length of run for a fork-lift truck before it becomes overheated. The instruction includes actual driving of the machine including proper use of the controls.

A dummy box-car has been constructed for use in training the drivers in the proper methods of loading and unloading, and an obstacle course in a warehouse has been designed to give the driver experience in the approved methods of materials-handling while at the same time testing his proficiency with the vehicle.

Study of construction includes lectures and training films on the nomenclature and functions of the major units of the vehicles. The limitations of the equipment used are given special attention, because of their relation to the safety of the vehicle. In this respect, additional practice is given in driving in reverse as the driver's vision is frequently obscured by the large loads carried in front.

Complete information is given on the key points, and safety points. In order to make the operation of these machines as safe as possible a series of safety suggestions have been outlined for use by the drivers. These suggestions include precautions, against overloading, "riding the clutch," pushing with the forks of the truck, excess speed and starting the vehicles while in gear.

Each driver is required to be familiar with the procedures of first echelon maintenance, which includes the routine checking of water, gas and oil and the minor repairs and adjustments made "on the spot." The study of methods of fire prevention is also an integral part of the course.

• Instructor in training course given lift truck operators at the San Francisco Port of Embarkation shows his class proper loading methods and also the danger of overloading.

Packaging Savings In Air Shipments

Future all-cargo airplanes will have permanent cargo compartments equipped with all the necessary apparatus to load and retain cargo, according to Thomas A. Wolfe, of Los Angeles, vice-president for traffic of Western Air Lines. The passenger-cargo type will have a movable bulkhead depending upon cargo space required and with a cargo type floor complete with tie-down fittings throughout the convertible portion.

Air transportation, he told the recent SAE Airgo Cargo meeting in Chicago, is minus most of the hazards of surface transportation, such as sliding, dropping, puncture, compression-like distortion caused by heavy loading, high piling, swaying and rolling, impact shear from standing and stopping action of rail cars, and exposure.

Experience of the Air Transport Command is that the percentage of tare weight on packages from 10 to 50 pounds for surface shipments averages 25 per cent to 40 per cent of the total weight, whereas a comparable tare for air shipments averages 12 per cent to 15 per cent.

Mr. Wolfe said one container already being used for air shipments of ladies' garments on hangars weighed only 17½ pounds, as against 147 pounds for surface shipping containers to hold 100 dresses.

New materials he said were developing for packaging air shipments included: thin, light-weight but strong corrugated material combining the protective quality of corrugated paper with the folding qualities of heavy kraft paper; fibre containers, corrugated and solid; moulded plywood containers coated and impregnated with an inert plastic, much stronger than steel and lighter than heat-treated aluminum; plywood boxes with bonded alloy steel liners; thin-walled aluminum containers; multi-wall paper bags; laminated kraft; waterproof plastic films.

Pacific Motor Activity

Forty-three plants in the three Pacific Coast states produced approximately $122,000,000 annually before the war in automotive goods, the Automotive Council for War Production reports. More than 26,000 persons were employed in vehicle manufacturing, parts and tire manufacturing and petroleum refining. Much of this activity was channeled into war production.

Kaiser on K. P.

The Henry J. Kaiser Co. have bought the rights to the Steril-Dry hydraulic, automatic dishwasher, and intend to farm out production to as many as seven or eight factories in non-critical labor areas until war restrictions on the Kaiser plants are lifted.

• NO TIRE TOO BIG OR TOO SMALL. A portion of the tire repair plant at the San Bernardino Air Service Command, where tires and tubes from heavy bombers down to small vehicles are put in shape. In the background are kettles used for curing in recap work. At right rear is a tire spreader; at left are tire stitching and regrooving machines. The repairmen in right foreground of picture are using aircraft tire balancing machine.

Recapping Service For Bomber Tires . . .

THE AAF Air Technical Service Command's rubber conservation campaign has kept the rubber repair branch at the San Bernardino, California depot on a 24-hour a day basis since September. Primary reason for the change from one shift a day to three was the critical need to conserve new aircraft tires.

Tires that formerly would have been sent back to the manufacturer for recapping and tubes that formerly were not considered repairable, now are being placed in first class condition. The range is from bomber tires to small vehicle tires.

• Wm. A. Chacon, assistant branch leader, demonstrates his invention, a tube mold for repair of small-sized aircraft tubes. The tube is clamped down on a piece of steam-heated piping, speeds tire and tube repair.

It also is repairing small injuries to aircraft tires—such as cuts and treads cracks—and is making bead repairs and other spot repairs. Some of these tires, including 56-inch tires from B-17 and B-24 heavy bombers, have been returned from overseas for repair by the San Bernardino Air Service Command. If the injury does not exceed a depth of two plies it is filled in with a combination of synthetic and natural rubber and cured.

The process of recapping aircraft tires at the San Bernardino Air Service Command is essentially the same as the vehicle tire recapping process, the main difference being that more precision is used with aircraft tires and the finished product is smoother. The buffing machine for the heavy bomber tires has been modified and the motor has been slowed from 3600 r.p.m. to give tires a finer buff.

Formerly if four holes had been repaired tubes were not considered repairable in event of further injury. Now there is no limit on the number of tube repairs. However, there is a limit on the size of the injury. Punctures with a diameter of more than two inches are not repaired.

Several inventions by employees within the branch have helped increase production. One of these is a tube mold that permits repair of small-size aircraft tubes that previously could not be repaired. The tube is clamped down on a piece of steam-heated piping. With an ordinary "hot plate" it is difficult to apply heat and pressure to spots on tubes of 1½-inch diameter. The invention also speeds repair of slightly larger tubes.

Another device increasing efficiency is a "hot plate" designed for large aircraft tubes. Because of the heaviness of the bead on this type tire, tubes frequently receive bead cuts extending completely around their circumference. The special plate permits application of curing heat and pressure along the whole length of the area to be repaired, eliminating the process of curing small sections at a time.

Owing to the shortage of new vehicle tires the rubber repair branch is rebuilding sidewalls and reconditioning vehicle tires that formerly would have been discarded. Vehicle tires with cracked sidewalls are stripped down to the fabric. Then new sidewalls are fastened on in a process similar to recapping. Complete rebuilding of vehicle tire requires eight hours.

More on Welding Stainless Steel

IN THE December issue appeared a problem submitted to the technical advisory service of Smaller War Plants Corporation at San Francisco regarding the welding of stainless steel tanks for milk storage and asking whether the welds should be annealed to restore the chromium. Replies received from four manufacturers of metal and welding equipment were also published. *Western Industry* now has received an additional comment from James H. Spade, Los Angeles, district manager for Allegheny Ludlum Steel Corporation. His statement is as follows:

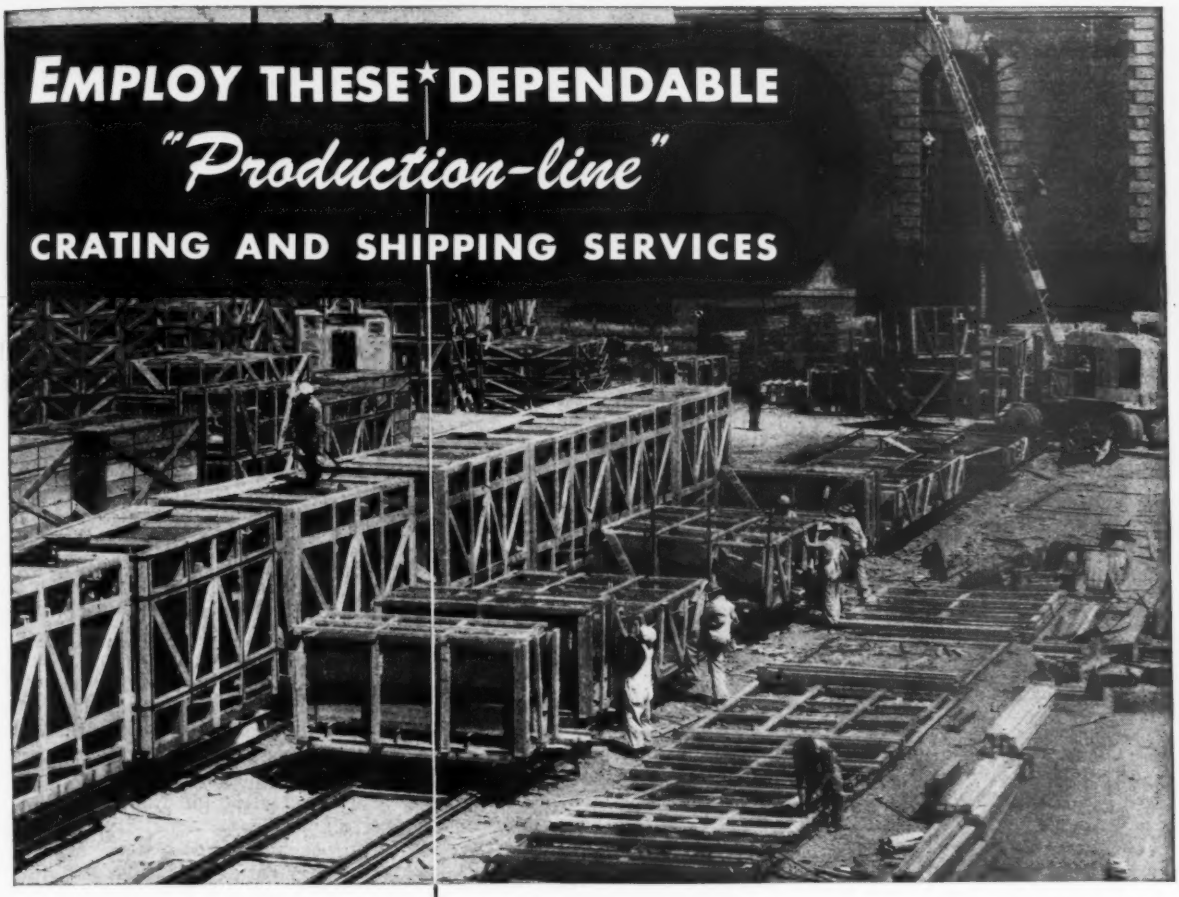
There appear to be a few pertinent points which the writer would ask permission to submit to the fabricator in reply to his question. These points are based on facts related to the theory and principles stated by the other contributors.

First: the customer poses the question on the basis of the tank for milk storage, in which he states that the stainless steel involved contains about 19.07 chrome and 7.23 nickel. The manner of stating the alloy gives the expression the implication

(Continued on Page 44)

MAINTENANCE is one of the most effective methods of insuring a profit. It is a balance wheel that keeps the plant operating smoothly, efficiently and economically, and saves the high cost of emergency repairs. The accompanying material is part of a series of editorial features dealing with maintenance in its varying forms and aspects.

EMPLOY THESE★DEPENDABLE "Production-line" CRATING AND SHIPPING SERVICES



CRATING ★ McDonough "production-line" crating insures minimum costs. Complete material-moving, wood-working and banding equipment, plus experienced workmen, guarantee safe handling and protection of delicate mechanisms. Heavy crating (up to 30 tons) a specialty. Special crating designed by our engineers on request.

SHIPPING ★ 12-car spur tracks, water-carrier loading equipment on the Oakland Tidal Canal, adequate storage facilities and central location for drayage loading, make possible prompt shipments to any point, via any carrier.

FINISHING ★ Welding, chipping, grinding, burning, spray-painting and other finishing operations by our skilled crews make it easy for you to step up production in your own plant and still be positive of high-standard work.

ASSEMBLY ★ McDonough craftsmen are experienced in sectionalizing products which must be shipped "knocked down". Receiving of parts and re-assembly service also available for plants to which "knocked down" machines have been consigned.

ARMY E NAVY

USE THE CREWS THAT WON THE ARMY-NAVY "E" FOR PRODUCTION EFFICIENCY!

McDONOUGH STEEL CO.

CRATING DIVISION • (FORMERLY BOILER TANK & PIPE CO.)
DERBY, GLASSCOCK & LANCASTER STREETS ON OAKLAND TIDAL CANAL
Write, Wire or Telephone TRINIDAD 3300 *For Early Scheduling of Your Products*

STEEL
SHEET, PLATE AND STRUCTURAL PRODUCTS
(welded or riveted)
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BOITANCO PRODUCTS

MAINTENANCE *(Cont'd from Page 42)*

that the analysis was quoted from an actual chemical report, rather than stating a random analysis.

Taking the analysis at its face value, which does not state the percentage of carbon involved, leaves two very open and pertinent questions. Namely, the carbon itself, and secondly, the low nickel content stated.

Other contributors placed emphasis on the carbon content, with which we heartily agree; and regarding the nickel, this should not be less than 8 per cent and usually will be found to run considerably over 8,—8½—9 per cent in any 18-8, either 302 or 304 stainless type. The steel recommended actually would be Type 304, in which the carbon content is definitely limited to .08 per cent max.

Carbon .08 max., nickel and chromium within the limits specified for Type 304 insure the best results so far as stabilized constituents after welding is concerned, excepting, of course, the other types of stainless which have stabilizing elements added; such as, Type 321 or 347 which includes either titanium or columbium.

The above statements can be related within limits to the thickness of the plate being welded, which in itself refers to the amount of heat dissipated in the adjacent weld as a function of the number of beads necessary to complete the thickness of the weld.

For instance, plate of approximately ⅛" thickness can be completely welded on a butt joint with a single pass of ⅛", or a 5/32" coated stainless electrode; whereas the ¼" plate in question will require at least two and perhaps three beads. Consequently, the metal adjacent to the weld and the prior deposited beads will have had to resist proportionately greater heat during welding.

Summarizing and balancing the above conditions may be accomplished briefly as follows:

1. Use the stabilized rod, preferably Type 347, for all welding.
2. Use heavy copper back up strip on the inside to dissipate heat from surface of plate on either side of joint as much as possible.
3. Bevel the plate from the inside outward, placing the first bead in the bottom of the groove finishing up to the outside of the bevel.
4. When the weld is completed to the outside, return to the inside of the vessel and place a light cover bead over the joint well beyond the original edges, which will effectively protect the inner plate surface at the bottom of the original "V," where the heat of welding is likely to have been most detrimental to corrosion resistance.
5. Remove all traces of oxide or welding flux which remain after the general cleaning of the bead. Lightly grind over the welding bead and adjacent plate to blend surface with approximately 180 grit wheel.
6. Finally, the vessel should be thoroughly cleaned, and where physically possible a nitric acid wash, particularly over the bead sections, with approximately 30 per cent nitric acid in water, and at a temperature of something above 100°F., and so rotated that the solution will have approximately ½ hr. exposure on the surface in question. This will insure the dissolving of any iron which might have abraded on to the surface of the vessel from contaminated grinding wheels, or tools of other description.

Thousands of units of stainless equipment have given excellent service for years in all branches of the dairy industry when constructed under no more complicated principles than above stated. Obviously this equipment is not "annealed" after fabrication, because of the impracticabilities involved.

A balancing act!

Remember the trained seal in the circus? He can balance the big ball on the tip of his nose with perfect ease—he never muffs.

Well, the seal's balancing act is very much like what we are doing—performing in our best manner to take care of all the demands placed upon us for immediate chemicals. By enlarging our plants and building new plants, we have stepped up production to a remarkable degree. We are doing a veritable "balancing act" trying to take care of everybody. We constantly re-arrange deliveries to keep all our customers—large and small, new and old—going with needed chemicals, so they can operate efficiently.

So far we haven't muffed in our "balancing act"—and with the excellent cooperation of our own customers we'll keep on "balancing" supply with demand. We do not seek your applause—our only desire is to merit your faith in our ability to serve.

STAUFFER CHEMICAL CO.

Synthetic Rubber Cheaper

The California Synthetic Rubber Project plants can make synthetic rubber at 10.7c a pound, compared with the prewar cost of 12c to 18c for plantation rubber delivered in the United States, according to Bradley Dewey, former rubber director, the California project being one of the lowest in the country. He was thus quoted by Fred S. Carpenter, manager of the United States Rubber Company's synthetic plant in Los Angeles, in a recent speech in San Diego.

Important Addition TO SQUARE D RAIN-TIGHT SAFETY SWITCH ENCLOSURES

LOCK TYPE HOLD UP COVER —SELF SUPPORTING

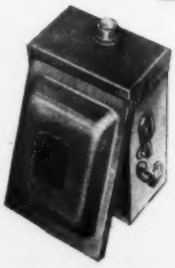
Lock type cover. New feature for holding door open while inspecting or repairing switch.

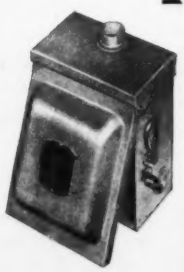
Now you can inspect or repair Square D Safety Switches with ease, no more worry about the cover falling down on your hands. The lock type cover holding the cover open is a time saver as well as a protection while working in the rain. Square D's Safety Switch Enclosures are galvanized steel and aluminum finish.

TYPE R-Rain tight switch.

250 to 575 volts—30 to 200 amperes.

The type R rain-tight safety switch is not provided with opening for the interchangeable type hubs.





TYPE RO—The type RO Rain-Tight Safety Switch is provided with the thread in the top endwall of the enclosure for the interchangeable hub as shown in the schedule below. 250 to 575 volts—30 to 200 amperes.

The thread in the endwall of this enclosure will not fit standard pipe fittings. Select the necessary fittings for this switch from the catalog numbers below and order from your electrical wholesaler.

Switch Rating	Plug Adapter bushing for Conduit Size					
	Only	¾"	1"	1¼"	1½"	2"
30 Amps	A1	C1	D1	—	—	—
60 Amps	A2	C2	D2	E2	—	—
100 Amps	A3	C3	D3	E3	G3	—
200 Amps	—	—	D4	E4	G4	H4

Five Interchangeable Hubs *All Adaptable To Type Ro. Type C And Type D Enclosures*

You can now use Square D's rain-tight Safety Switch Enclosure with the interchangeable hubs. Five different adapter bushings to fit five different conduit sizes. All are interchangeable and are adaptable to the same switch enclosure.

These switches will be provided with one threaded opening in the top endwall of the box. This thread will not be standard—consequently, adapter bushings and plugs will be provided and sold as separate items. It is important to know that the thread in the box endwall will *not* take standard pipe fittings, otherwise you may learn this fact to your inconvenience after you are on the job and ready to connect the conduit.

All switches requiring the use of adapter hubs should be ordered with the suffix RO. The catalog numbers will apply for the adapter bushings for conduit and for hole closing plugs:

Type C Rain-Tight Safety Switches are quick make and quick break. Made up to and including 600 amperes, 600 volt. Fusible and not fusible. Horsepower rated. 2, 3 and 4 poles, 2, 3 and 4-wire solid neutral.

Type D Rain-Tight Safety switches are quick break only in capacities from 60 to 600 amperes inclusive. Thirty-ampere switches are not quick break. Made with 2, 3 and 4 pole and 2, 3 and 4-wire solid neutral 230 volt A.C. and 250 volt D.C.

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Future Steel Pattern At Salt Lake Meeting

WHEN the new Western Regional Council meets at Salt Lake City February 12-13 for what originally was intended to be an organizational session to get the Council safely anchored on a sure foundation, that matter will be shoved into the background. Instead, the study of the future needs of the Western steel industry, on which the Council had embarked before the organization itself had time to jell, will be the main topic of the meeting.

Part of the reason for the change is the ODT's new rule against conventions which bring more than 50 people into a state. That made it impossible to have a full-scale Western meeting at which the need for Western unity could be aired and progress made toward uniting the West.

The rest of the reason is a sudden urge by some of the representatives of the Council to get going on the steel question immediately, whether the Council itself survived or not. As the program was set up at this writing, time would not permit the welfare of the Council to get much consideration, although presumably there will be a skeleton attendance of directors of the new organization from various of the 11 Western states.

Geneva Tour

On the program for the first day is a trip to the Geneva steel mill, while the second day will be given over to a session where aspects of the steel question will be presented and discussed.

Speakers are as follows: Arthur J. Boynton, consulting engineer, Chicago, "Requirements of a Successful Steel Industry"; Dr. J. R. Mahoney, director, Bureau of Economic and Business Research, University of Utah, "The West's Ability to Maintain a Successful Steel Industry"; Morris B. Pendleton, president, Plomb Tool Co., Los Angeles, "The Position of the Western Manufacturer of Steel Products"; F. T. Letchfield, consulting engineer, Wells Fargo Nevada National Bank, San Francisco, "The Industrial Development of the West"; W. W. Hale, vice-president of system freight traffic, Southern Pacific Company, "The Interest of the Railroads in the Industrial Development of the West"; U. S. Senator Ralph Brewster (Maine), "An Appropriate Government Policy for the Disposal of Iron and Steel War Plants."

The Council's steel committee, composed of Louis Lundborg of the San Francisco Chamber of Commerce, Leonard Reed of Los Angeles, Gus Bachman of Salt Lake City, and F. R. Letchfield, economist of the Wells Fargo Nevada National Bank of San Francisco, planned the steel investigation to ascertain the needs of the steel consumers. Consequently fabricators from the leading Pacific Coast cities will be present, but representatives of Geneva, Columbia and Kaiser also have been invited to attend.

Among Those Present

San Francisco's delegation will include President Henry Grady of the Chamber of Commerce, Louis Lundborg, general manager, Roland Tognazzini, chairman of the industrial committee.

E. C. Soule, chairman of the iron and steel section, and Lyn Fox, manager of the industrial department.

Los Angeles will be represented by many of the steel committee which the L. A. chamber appointed to determine how the supply of steel could be increased and the prices reduced. Chairman of the committee is Alden Roach, president of Consolidated

WALWORTH PIPE WRENCHES

WALWORTH GENUINE STILLSON PIPE WRENCH:

The favorite and most widely recognized pipe wrench made. Invented by Dan Stillson in 1869, in the Boston Works of Walworth Company, and more popular with skilled mechanics now than ever before.

WALWORTH WALCO PIPE WRENCH:

An all drop forged heavy duty wrench whose patented features insure quick, positive grip, easy release, and minimum crushing effect.

WALWORTH PARMALEE WRENCH:

The wrench that grips like a human hand. Does not bite into or score brass or copper pipe. A necessity for any tool kit.

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Distributors of WALWORTH Quality Products and Allied Industrial Lines

"BRING YOUR PIPING PROBLEMS TO WALWORTH"

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Steel Corporation, who has been championing the cause of lower steel prices. Other members of this committee are:

LeRoy M. Edwards, president of the Los Angeles chamber and vice-president and general manager, Pacific Lighting Corp.; W. C. Mullendore, past president of the chamber and executive vice-president, Southern California Edison Co.; Leonard E. Reed, general manager, Los Angeles chamber; G. A. Axelson, chairman of the board, Axelson Manufacturing Co.

John E. Barber, Consolidated Steel Corp.; C. E. Bradburn, president, Pacific Iron & Steel Co.; B. Bronzan, general manager, Baash-Ross Tool Co.; W. A. Buehler, general manager, Buehler Tank and Welding Works; E. S. Dulin, Byron Jackson Co.; William H. Guild, executive assistant, Union Pacific Railroad Co.; B. A. Hinckley, president, General Water Heater Corporation.

Kenneth T. Norris, Norris Stamping & Mfg. Co.; George J. O'Brien, vice-president, Standard Oil Company of California; D. P. O'Keefe, president, O'Keefe & Merritt Co.; Morris B. Pendleton, president, Plomb Tool Co.; John Rauen, U. S. Spring & Bumper Co.; Robert Miller, Southwestern Engineering Co.; Emerson Spear, Pacific Wire Rope Co.; Carlton B. Tibbetts, president, Los Angeles Steel Casting Co.; and James F. Bone, secretary of the committee, manager, industrial department, Los Angeles chamber.

Oakland's delegation will include President Gerald Hagar of the Chamber of Commerce, Harold Weber, general manager, E. H. Hammond, manager of the industrial department, Will Evans, chairman of the chamber's manufacturing committee, and representatives of steel fabricators. The California State Chamber of Commerce is sending Herbert Ormsby, research director.

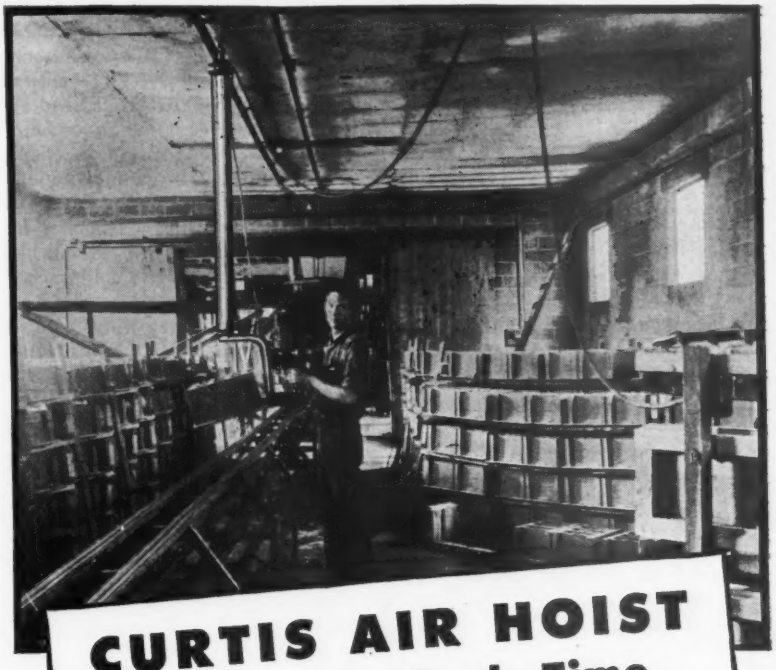
The Pacific Northwest also will have its representatives at the meeting, and so will the intermountain territory.

Seattle's group will be headed by the president of the Western Regional Council, Christy Thomas, who is executive vice-president of the Seattle Chamber of Commerce. James E. Louttit, manager of the industrial department, will be with him, and two steel fabricators, Henry Isaacson of Isaacson Iron Works and Mark Colby of Colby Engineering.

Portland's group will include Arthur Farmer, manager of the Portland Chamber of Commerce. F. W. Mathias of Olympia, secretary of the Council, will attend, also Frank Walsh, manager of the industrial department of the Tacoma chamber.

Steel producers will be on hand as observers. As it is right on the home grounds for Geneva, President Walter Mathesius of Geneva Steel Corporation and various others will be there. Columbia Steel Com-

(Continued on Page 48)



CURTIS AIR HOIST
Saves Two Men's Time For Little Rock Firm

The Little Rock Lumber and Coal Co. uses the Curtis Air Hoist shown above to off-bear green concrete blocks from the curing room to the main conveyor. Previous to the use of the Curtis Hoist, handling 8x8x16 blocks was done by hand. Now, "one man, through the use of the Curtis Hoist, off-bears three blocks at a time, *thus saving us two men's time.*"

In these days of man-power shortages, saving in man hours through the use of Curtis Air Hoists becomes more important than ever before. In addition, Curtis Hoists offer all these advantages:

- **Smooth, fast, accurate control of loads**
- **One-man or woman operation — finger-trip control**
- **Low first cost — low operating expense**
- **Immune to abuse or overloads**
- **Light-weight — pendant, bracketed, or rope compounded types**
- **Do not require skilled labor**

You, too, can increase production efficiency, reduce worker fatigue, save man-hours of labor by solving many material handling problems with Curtis Air Hoists. Write for full information and free booklet, "How Air Is Being Used in Your Industry."

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Please send me booklet, "How Air Is Being Used in Your Industry."

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Firm.....
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City.....State.....

STEEL MEETING *(Cont'd from Page 47)*

pany's representation has not been determined at this writing. From the Kaiser organization the representative may be either A. B. Ordway, vice-president in charge of operations, Eugene Trefethen, vice-president, or Jack Ashby, sales manager.

Because steel is the "hottest" industrial question before the West right now, the urge to discuss it is understandable. Fabricators want to know how much steel will cost them, and the mills would like a picture of the market. A keen competitive situation between Geneva, Columbia and Fontant is involved, to say nothing of the effect on the eastern mills who sell in the West.

At any rate, it is the first meeting of mills and fabricators for the purpose of discussing the future set-up, and so undoubtedly will clear the atmosphere, develop much important information and pave the way for a better understanding all around.

One of these cloudy points is freight rates. Reports that Geneva would have to have a $5 freight rate to the Pacific Coast in order to survive are countered with the assertion that a change of this kind would affect communities of all kinds clear back into the Chicago area.

West Handles Huge Tonnage

FIGURES on the number of carloads of freight delivered for export through Pacific Coast ports, released by the Department of Commerce, show that:

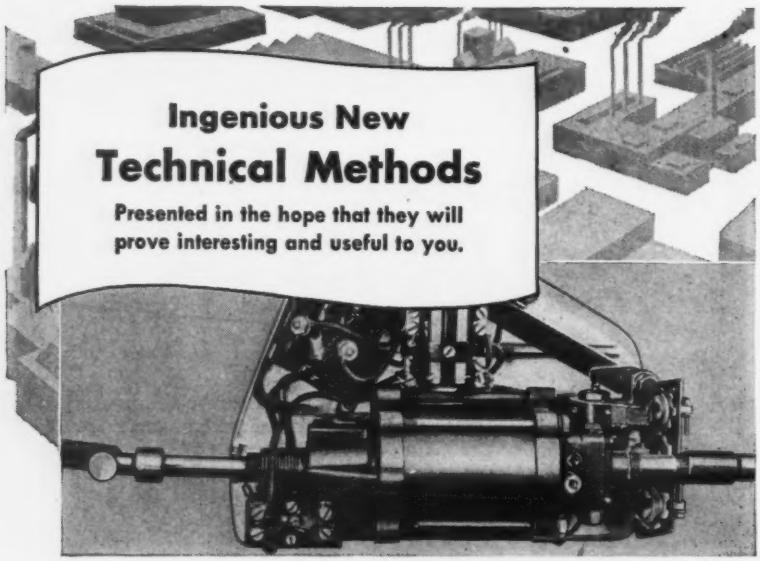
1. Since the start of Pacific War down to October 31, 1944, the daily average number of cars unloaded at Pacific ports for transfer of contents to ships, has multiplied about 13 times.

2. Latest disclosed handling of such cars represents 35 per cent of the national total against 8 per cent at the beginning of 1941.

3. The West Coast port gain of about 1300 per cent contrasts with a gain of about 270 per cent nationally, 200 per cent on the Atlantic seaboard and 66 per cent on the Gulf.

Daily average unloadings at Coast ports have reached about 2,000, a rise of about 800 cars a day since the beginning of 1944. Latest reported national average was in the neighborhood of 5,400 cars a day of which about 3,000 were unloaded at Atlantic Coast ports, around 500 at Gulf ports. Two thousand cars of freight a day would mean somewhere around 1,750,000 tons of freight a month.

The real advance in Coast unloading for



New Electroaire Power Unit Converts Standard Drill Press to Automatic

This exact control over feed and retraction speeds permits ready conversion of a standard drill press with tapping head into an automatic tapping machine, capable of producing Class III threads, even with comparatively unskilled operators. By adjusting speed to conform to the lead pitch of the threads being tapped, the tap will cut without forcing threads, and on the reverse the tap will actually "float" out of the part with no strain against the thread angle.

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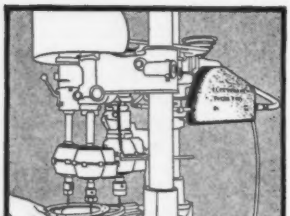
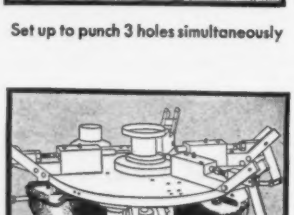


Set up to punch 3 holes simultaneously



Shows holes being drilled automatically

Z-55

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export began with 1942. A peak of about 1,400 cars a day or a little more was maintained in the summer and early autumn of 1943 after which there was a drop to about 1,100 at the year-end. Since then there has been almost uninterrupted rise with heaviest increases last February and March and again since August.

In the closing months of 1942, when the Coast unloadings were rising impressively, while Atlantic loadings lagged, the Coast level represented about half the national unloadings for nearly 60 days.

It is calculated that the rail lines serving the Coast had an aggregate increase in working staffs of 4 per cent in the 12 months last reported.

Additions to rail motive power in the same period, very largely in super-power diesel and steam locomotives, based on rated tractive efforts of locomotives, was figured at 6.1 per cent for the central western region focalizing at San Francisco; 3.9 per cent in the northwestern region, and 3.3 per cent in the southwestern region. Car equipment increased much less but to some extent—0.6 per cent in the Northwest, 0.3 per cent in the Central West and 2.3 per cent in the Southwest.

Divisional and terminal handling points that were of considerably less than the main lines of the Western railroads were potential bottlenecks, and most of these have been cleared by the building of many miles of yard track.

To keep traffic moving, the ODT has done considerable diversion of traffic, and in the 21 months ending October 31, the ODT, in cooperation with the ICC, has diverted 207,566 carloads from intended routings to channels of freer capacity. This is equivalent to an average of 10,000 cars or about 140 full trains a month.

Shipyard Turns To Ping Pong

If you can't think what else to do with your shipyard after your contracts run out, make ping pong tables. That is what Roger C. Watson has done with the former Victory Shipbuilding Yard at 611 Coast Highway, Newport Beach, California.

The yard has been renamed Watson Woodcraft Shops, and production of light weight, buoyant paddle boards, ping pong tables and other forms of play equipment is being started there.

Success For Silk

Although past attempts to make a financial success of the silk industry in California have failed because of inability to meet the competition of cheap labor in Japan, an interim committee of the California legislature now reports that a new mulberry leaf picking machine and a reeling machine will reduce production costs sufficiently to meet Japanese costs. California can produce three crops a year to Japan's one.

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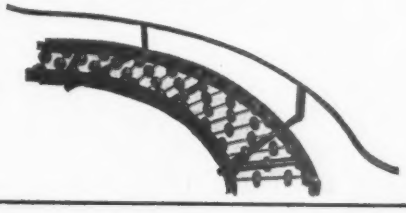

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Turnover in Western Congressmen Harmful

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

By ARNOLD KRUCKMAN

WASHINGTON, D.C.—In view of the discussion which will grow in the coming months about the plan to streamline Congress in consonance with modern needs, it should be noted, first of all, that the joint Congressional committee created in the closing days of the last Congress in December includes only one member from all the states west of the Mississippi, constituting over two-thirds of the continental area of the United States.

Senator Thomas of Utah is the lone Westerner on this committee, but it is assumed that in reestablishing this committee in the present 79th Congress, the Western states will insist upon the addition of more Westerners.

One of the main causes for the scanty representation for the West on key Congressional committees is the tremendous turnover among Westerners in Congress. As a result, the Western members do not get as much seniority as those from other parts of the country where it is less customary to oust Senators and Representatives after a term or two.

For example, 35 per cent of all Senators and Representatives from the West Slope and Alaska elected last November were new. These 15 newcomers represent approximately 20 per cent of all the new members in the entire country.

Regarding the streamlining situation, population has been the basis of Congressional representation ever since the Constitution was adopted. At the same time the basis, as adopted, has been vigorously debated ever since the founders of the Republic met in Philadelphia to make the Constitution. Very active opposition to population as the sole basis of representation is to be found in The Federalist, the annals of the convention which formulated the Constitution, which was written jointly by Madison, Jay and Hamilton.

The issue crystalized very definitely about 25 years ago when the Townsend Act brought about the law under which the states receive federal aid to build highways. Those in Congress representing the states with the centers of population assumed the funds would be distributed on the basis of population.

This plan would have virtually choked the flow of highway funds to the Western states. The debates not only revealed the inequity to the great states of the West, but made clear that highways in the West

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would be of practical benefit to the populated centers of the East. It was finally decided the funds should be allocated on the basis of one-third in relation to the public lands which each state, one-third on the basis of various types of roads, and another third on the basis of population. The principle has remained the Congressional yardstick.

Much of the present debate about streamlining turns upon the question of more equitable distribution of membership in the important functional committees of Congress. The overwhelming majority of population in the Eastern and Southern sections of the country has enabled the members of Congress from these areas to pack and control the majority of the committees.

The custom logically has the settled sanction of the historic precedent based upon population, originally accepted by those who made the Constitution. From time to time, in the development of the nation, there have been slight modifications in the concept of the precedent. There are many here in Washington, not from the West, who now feel the principle adopted for the allocation of highway funds may be applied to the mechanics of forming the Congressional committees.

New Formula Suggested

Purely as a basis of consideration it has been suggested that the formula might rest partly upon population; partly upon resources such as timber, livestock, agriculture, minerals, and power; and partly on industry as represented by fishing, aircraft building, shipbuilding, food processing, lumber production, motion pictures, sugar making, and other manufacturing activities such as the production of light metals, steels, furniture, types of apparel, chemicals, and other products which are becoming a stable part of the Western economy.

At this writing the jockeying which is an inevitable part of the organization of the committees is consuming most of the time of the members of Congress.

It is the custom usually to re-appoint former members of Congress who have been newly elected after an absence from the rolls, to the committees with which they were connected during their earlier terms. They lose their seniority by reason of the gap in their service, but they have more influence and better standing than the raw freshman. It is assumed the old-timer has experience in the purposes of the committee which the newcomer must still learn.

Therefore, it is interesting to contemplate where the newcomers from the West will be placed. Obviously, if it is feasible, the Committee on Committees tries to put the freshman somewhere where his or her special abilities or training or experience will make the service more than casually appropriate.

(Continued on Page 52)

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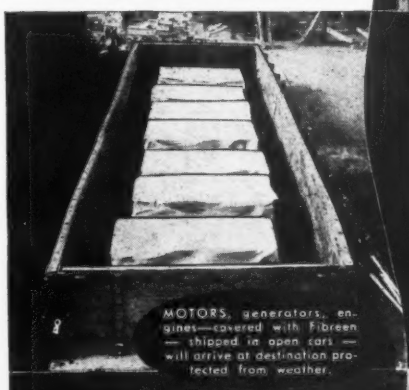

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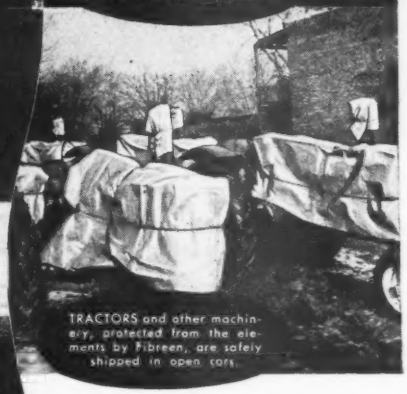

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KRUCKMAN *(Cont'd from Page 51)*

Unfortunately, they do not seem to be following this idea in the case of Helen Gahagan Douglas, the Brooklyn actress, who comes from the Fourteenth District of Hollywood, much ballyhooed for glamor, and with blaring of trumpets. She will be placed on the House Foreign Affairs Committee, not because she has any remote qualification for the assignment by experience or training, but because the moguls of Hollywood have been promised she would be given the appointment. Foreign affairs is one of the glamor jobs in Congress. It always is in the spotlight, and is bound to be in the concentrated spotlight of spotlights the next few years.

Our Weird Government

Here is an extremely pertinent manpower incident. The laundries of the Los Angeles area have been serving a half million armed forces stationed around there, as well as ship service facilities of the Navy, and the troops passing through en route to the Pacific. The number they have been serving is huge. In addition, they have been taking care of the laundry work of the thousands of war plant workers and the rest of the populace.

They found their help was thinning out, so voluntarily the laundry operators raised the hourly wage rates to a schedule starting at 55c an hour and running as high as $1.12 an hour, according to the skill. Moreover, the laundries specifically disclaimed any right to ask for an increase of laundry prices based on the higher wage rates; OPA is accustomed to grant price raises on this basis.

The snapper comes in the amazing fact that the War Labor Board sent its scouts out to investigate, and it became known the laundries would be forced to reduce their voluntary high wage schedules, and that they might be penalized hundreds of thousands of dollars because they paid the wages which Congress says should be paid in order to maintain the standard of living.

Incidentally, for almost a year the laundries had urged WLB to formally approve the raises before they were made. OCR stepped into the picture recently and arranged that the laundries might appeal from the order which would logically cause their help to leave them, and which might penalize some laundries so drastically that they would have to close. The appeal acts as a liberal stay, and it is confidently expected the wage schedules will not be upset, although the laundries may have to accept a "token" penalty. Truly are the ways of Government weird and wonderful!

Manpower Situation

Selective Service defines all recent actions and orders and directives thus: no man 18 to 37 years old shall leave his war

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plant without first getting a determination from his Selective Service local board that it is more in the interest of the war for him to go to the armed forces or to other work than to stay where he is.

The Government believes that men will respond to the requests of the local draft boards more willingly than from any other source. It also is the opinion that if the freezing of workers in war plants is not sufficient to do the increased production task, the local draft boards are best equipped to say who shall move from one type of work to another.

It appears to be the idea that those who fail to accept this direction from the draft boards "voluntarily" shall be inducted in a special unit of the armed forces to do the most unpleasant work, with much less pay and benefits, and in a different status from those "honorably" inducted.

If the present plans do not work, it is suggested non-war jobs would be cut by drastic action, no more non-war jobs would be permitted to come into existence, and existing non-war activities would be shut down either wholly or partially. Pending decision about the national labor draft, this seems to be the broad outline of what is ahead.

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WESTERNERS AT WORK...

Arizona

Changes at Miami Copper and Castle Dome: B. R. Coil, general superintendent Castle Dome, becomes Miami superintendent also; J. C. Van De Water promoted from assistant mine superintendent of Castle Dome to mine superintendent same company; J. H. Harris, general mine foreman Miami, appointed to mine superintendent Miami to fill vacancy caused by decease of A. P. Jones; W. F. Distler, stope engineer, becomes assistant mine superintendent under Harris; E. G. Williams, Miami's mine foreman, takes Harris' old job as general mine foreman.

California

James T. Ashton named chief engineer, Harris Manufacturing Co., Stockton, H. M. Alumbaugh consulting engineer, and V. O. Jallings general office manager and assistant controller. . . . Lieut. Colonel Raymond W. Conroy of the U. S. Marine Air Forces named president of Oil Purifier, Inc. of Oakland; Harold G. Rice, former manager Pioneer Motor Bearing Co. appointed vice-president and general manager plant production; and Virgil Valaer chief consulting engineer and member of board of directors. . . . Howard R. Hughes promoted to assistant general manager of Southern Pacific, San Francisco and succeeded by Eugene D. Moody as superintendent of Western Division. . . . Thomas P. Hearne, standards engineer, and chairman of International Aircraft Standards Committee, Ryan Aeronautical Co., San Diego, is in England at invitation of British Government to help coordinate engineering standards of aircraft manufacturers in U. S. and Great Britain. . . . E. F. Euphrat, president, Pacific Can Co., San Francisco, one of nine manufacturers appointed to industry advisory committee to advise and consult with OPA. . . . Charles L. Harney elected to serve as 1945 president Northern California Chapter Associated General Contractors; Ross A. Westbrook of Sacramento elected as vice-president, and H. Earl Parker, general contractor of Marysville, added to Board representing section north of Sacramento, with Lynn Schloss of Ramsome Co., Oakland, representing East Bay, and Lloyd Holton of Tidewater Associated Oil Co. representing San Francisco. . . . Charles Page, director, Johnson & Higgins of California, appointed San Francisco community chairman of Committee for Economic Development; Harold B. Mills of Chamber staff cooperating with Page and his committee. . . . G. F. Gerhauser, former assistant chief tool engineer, appointed chief tool engineer Consolidated Vultee Aircraft Corporation's San Diego division, replacing E. P. Myers, resigned, and D. C. Wilkins, Jr., succeeding George Ford, becomes chief of industrial relations. . . . John B. Steen, formerly general superintendent of repair division of the Everett Pacific Shipbuilding and Dry Dock Company, Everett, Washington, appointed operations manager of Amship Corporation, Alameda. . . . S. B. Maher appointed a manager of General Electric's distributing branch in Los Angeles. . . . J. C. Voiles appointed chief engineer of Plant Rubber and Asbestos Works with headquarters a San Francisco main office and succeeded by R. E. Bounds as manager, industrial construction department for Los Angeles District. . . . Major Howard H. Adams public relations officer, ATSC's Western District, promoted in rank to lieutenant colonel.

Nevada

Roy Collard, assistant plant manager a the Los Angeles factory of Rheem Manufacturing Co., transferred to Nevada t become plant manager of Rheem operations at Henderson, where 81-millimeter mortar shell cartridges are to be machined and finished in a portion of the old Basic Magnesium, Inc., plant.

Erich J. Schrader, Reno, elected chairman of newly organized Northwest Branch of the Nevada Section of the American Institute of Mining and Metallurgical Engineers, and Glenn L. Allen of Reno elected secretary.

Oregon

Edmund Hayes, head of Row River Lumber Co., Portland, elected president t succeed George L. Drake, and re-elected Clyde S. Martin, Tacoma, secretary, an Charles S. Cowan, Seattle, treasurer. . . George T. Gerlinger, Portland, re-elected president of National Lumber Manufa

• **Partial view of the machine department at Jantzen's big knitting mills in Portland, where parachutes for bomb flares, nylon bom cords and gas masks are being manufactured for the armed forces in addition to the regular line of sweaters and swimming suit**

turers' Association and also chairman of board of trustees of American Forest Products Industries, Inc.

Washington

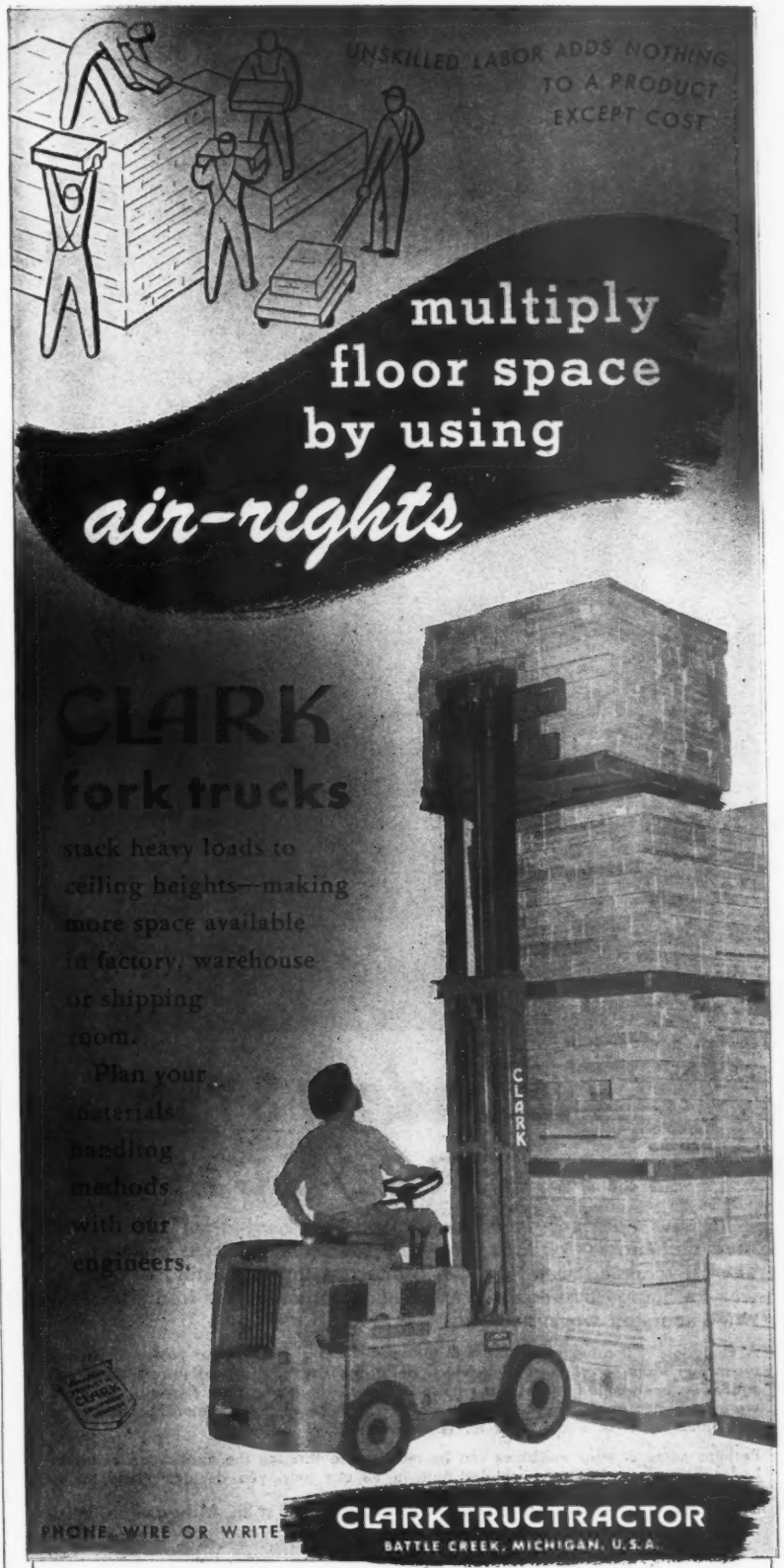
Carl C. Nissler, former president and manager Supply Laundry Co., appointed district priorities chief for Seattle area War Production Board. . . . Paul Pigott, president of Pacific Car and Foundry Company of Seattle and Renton, appointed president of Kenworth Motor Truck Corporation, following Pacific's purchase of controlling interest; Ferdinand Schmitz, vice president; John Holmstrom, vice president and general manager; Vernon Smith, vice president; John Cannon, secretary-treasurer; K. T. Worthington and F. D. Pitts, assistant secretary-treasurers. . . . R. A. Wilde of Everett elected president Red Cedar Shingle Bureau, Seattle; also elected: Charles Plant, Vancouver, B.C., and Jess Schwarz, Kelso, vice presidents; G. A. Brewer, Seattle, treasurer; W. W. Woodbridge, Seattle, secretary manager; trustees include J. A. Wasser, Rainier, Ore.; W. A. McLallen, Vancouver, B.C.; C. C. Rose, Aberdeen; P. H. Olwell, Everett; Dale Craft, Raymond; N. A. English, Vancouver, B.C.; Jack MacKenzie, Fraser Mills, B.C. . . . Capt. W. E. Thompson appointed industrial manager Puget Sound Navy Yard, replacing Admiral Claude S. Gillette.

After the War, The Claim Deluge

California's Industrial Accident Commission expects an avalanche of claims after the war, and cites as proof the experience of a workman's compensation insurance company which insures one of the San Francisco Bay area shipyards.

The shipyard, because of a shift over from the building of Liberty ships to building a larger type of ship, was forced to lay off approximately 4,000 men for a period of the lay-off of not more than ten days. The day following the lay-off, there was a line-up of employees outside the insurance company's office two abreast and several hundred feet long. The line-up continued for approximately a week. The insurance company estimates that well in excess of 1,000 employees made a claim of some sort for workmen's compensation.

"When it is remembered that the lay off was known to be temporary," says the Industrial Accident Commission, "that the employees could have obtained employment instantly elsewhere if not reemployed by the shipyard, and that the lay off occurred during an era of exceedingly high wages, it requires very little acumen to visualize what will happen when the war is over and the employees in the shipyards and other similar war-swollen industries are permanently laid off."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REGIONAL REVIEWS
COLUMBIA EMPIRE

TIME and again Edgar Kaiser, general manager of the three Portland-Vancouver Kaiser shipyards, has appeared before his workers and told them that hard work and plenty of production would give them a better break in the getting of contracts when other shipyards would be closing down.

Many workers took this as another type of "pep talk." Most of them took it seriously, seriously enough to run off with every known Maritime Commission award for which they were eligible. During November these three yards led all other shipbuilding areas on the coast in ship tonnage delivered. In December, Oregon Ship copped the AP-5 champ flag for keeps with Vancouver a close second while Swan Island won back the Tanker champ flag to make it a clean sweep.

With the dawn of the new year, however, came the real payoff and workers realized with pleasant surprise that "the boss" hadn't been handing them a line after all. Vice Admiral Emory S. Land, chairman of the Maritime Commission, revealed the allocation of 226 additional ships for construction in 18 shipyards during the last half of 1945.

Of these 226 vessels the three Portland-Vancouver yards will build 43 totaling 567,000 deadweight tons. This is more than was awarded any other shipbuilding area in the nation and amounted to one-fifth of the entire total. Kaiser workers here who long suspected that they are about the hottest shipbuilders anywhere, are now absolutely convinced of it.

Talk about early closure of the yards is now stilled. All told, the three yards now have contracts to deliver 164 vessels during the year totaling over 2,000,000 deadweight tons. In addition, Vancouver is building two drydocks, one of which will be launched January 15 and moored at Swan Island and the other at Los Angeles. This means that Swan Island will go into heavy repair work as well as tanker building.

On top of all this, Oregon Ship has received an Army contract to build $12,000,000 worth of aluminum half pontoons totaling 4,000 units. This job alone will take 3,000 workers and will necessitate converting certain sections of the plate shop and assembly building to this work. More important, however, is that Kaiser workers see themselves getting into other types of work besides shipbuilding. They are beginning to speculate on the future of the light metals fabricating industry and what it may mean to them.

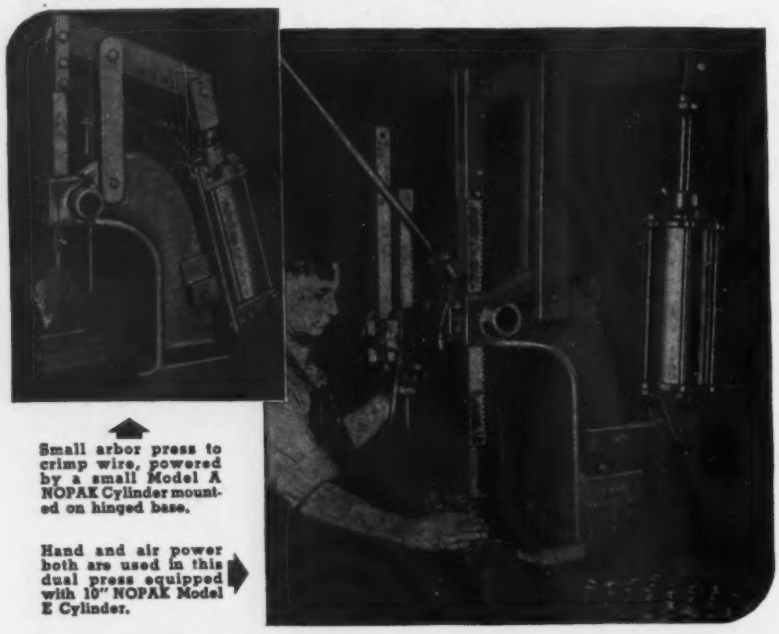
This month Kaiser is also opening his steel sales office in the Corbett Building. There has probably never before been such a high degree of optimism concerning the future of the entire Kaiser organization than at the present time.

Aluminum Comes Back

Like shipbuilding, aluminum production was apparently going into the decline several months ago. Now, that too, is apparently changed. Recent announcements point to a shortage of sheet aluminum for B-29s and such jobs as the pontoons to be built at Oregon Ship.

This does not mean, however, that there will be a sudden burst of activity in the aluminum plants in this area. These plants are producing pig aluminum of which there is an ample supply according to local operators. Troutdale still has one of its potlines closed down and there is no indication yet that it intends to start it up again. If it is true that there is a shortage it exists at the rolling mill end, not in pig production.

Here again Portlanders were somewhat surprised to learn how important this area is in aluminum production. They knew



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A vital step in this modernization was the application of air cylinder power to various types and sizes of arbor presses which perform many of the holding, clamping and squeezing operations in assembling these brushes. Altogether, nearly twenty machines were converted to air operation. Foot control valves leave the operators' hands free to manipulate tools, dies and parts for speedy assembly.

Perhaps some of your machines can be modernized through the application of air or hydraulic power. NOPAK Cylinder Bulletin 82 can help you decide. Write for it.

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NOPAK VALVES and CYLINDERS

Representatives in Principal Cities

DESIGNED for AIR or HYDRAULIC SERVICE

A 4552-½I

that several plants were operating in the Northwest but they didn't know that during 1944 the five Northwest reduction plants turned out 500,000 pounds of the light metal or about one-third of the nation's total for the year. Here was the backbone for more industry. Here was the raw material of the future. Maybe this really is the land of promise.

Electric Power

Though shipbuilding and aluminum production loomed large in the 1944 industrial picture in this area, electric power loomed even larger. In January the Bonneville Power Administration issued its annual report on electric power which was well loaded with staggering figures.

The report, however, pointed to a postwar problem. Of the nine billion kilowatt hours delivered by the Administration during 1944, 6,218,000,000 were to war industries. Bonneville's sales and promotion staff is frantically trying to work out angles for the use of this power when the war is over. During the first week in January the Bonneville regional advisory council met in Portland to discuss it.

Electrification of railroads was held forth as one potential use of considerable power. Another is expansion of peacetime industry especially in the field of light metals. A third market is expected in far greater expansion of the use of electricity by individuals, home-owners, and farmers.

Barclay J. Sickler, former chief of the division of power sales and service for Bonneville will return to that position this month it has been announced by Administrator Paul J. Raver. Sickler has been on loan as chief of the power division of the office of war utilities for the past two years.

Increased use of Bonneville power did not come at the expense of private power industries. The Northwest Electric Company reported that it sold nearly 30,000,000 more kilowatt hours in 1944 than in 1943. At the end of 1944 the company was serving approximately 1250 more electric customers than a year ago.

The average annual use of electricity by residential customers had increased nearly 10 per cent to a new high figure of more than 2900 kilowatt hours. At the same time the company declared that the average price received by the company for residential service will show a drop of about 10 per cent, as compared with the previous year, and will be down to a new low figure of 1.65 cent a kilowatt-hour.

Lumber Down

Lumber production is the most critical problem facing the Northwest, with 75 million more feet of lumber sought by the military for suddenly increased needs on top of nearly 900 million feet now being milled for urgent and war contractor business, and with several mills recently closed.

BUT I THOUGHT ROEBLING MADE WIRE ROPE?
SURE, AND ELECTRICAL WIRES AND CABLES, WOVEN WIRE SCREEN, STRIP STEEL AND FLAT, ROUND AND SHAPED WIRE, TOO!
ROEBLING
JACK MARKOW

Roebling produces every major type of wire and wire product . . . toaster cord to telephone cable . . . bridge cable to wire rope . . . fine filter cloth to heavy grading screen . . . strip steel and flat wire to round and shaped wire . . . all Roebling products. All the result of over 100 years of wire specialization. John A. Roebling's Sons Company of California. San Francisco, Los Angeles, Seattle, Portland.

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PACEMAKER IN WIRE PRODUCTS

WIRE ROPE AND STRAND • FITTINGS • SLINGS • SUSPENSION BRIDGES AND CABLES
COLD ROLLED STRIP • HIGH AND LOW CARBON ACID AND BASIC OPEN HEARTH STEELS
AIRCORD, SWAGED TERMINALS AND ASSEMBLIES • AERIAL WIRE ROPE SYSTEMS • ROUND AND SHAPED WIRE • ELECTRICAL WIRES AND CABLES • WIRE CLOTH AND NETTING

REGIONAL REVIEWS
TEHACHEPI TO TIJUANA

CHANGING fortunes of war reflected themselves first in a slowing down of the reconversion of civilian production that had started. Almost 80 per cent of the applications that had been filed previously had been approved. This dropped to 50 per cent almost immediately. From now on, it will be a case of even closer screening, although applications that meet all of the various requirements may receive approval.

Manpower will continue to be a major question, because this area still needs the same 25,000 workers that it needed last month, the month before, etc. It is pretty much a matter of turnover. Out of 93,518 shipyard workers, 8,582 left in November. It was 7950 out of 147,714 for the aircraft industry, and 1,663 out of 14,042 for the rubber industry. Thus, in these three industries, more than 18,000 workers left their jobs during November.

Turnover in shipyards varied from 7.8 to 11.4 with an average of 9.2. Rubber varied from 8.4 to 14.9 with an average of 11.8. The aircraft industry showed the lowest percentage with a low of 4.0, a high of 7.5 and an average of 5.4.

Although these figures sound unfavorable, they are considered very good because November was better than October, and October was much better than August or June.

Workers Going and Coming

A few months ago, there was a great stir in national news magazines about "war workers leaving the West in droves." This area seemed as crowded as ever, and those whose job it is to study this question felt that just about as many were arriving as were leaving. WMC figures for October and November show that 16,009 workers did leave this area. Of that number, 4,413 were going to other parts of California, and 11,596 were going "out of the state." BUT—at the same time, 15,814 workers were coming to work in this area. Of that number 4,521 were from other parts of California, and 11,293 were from "out of the state." We thus find that the outgoing and the incoming just about balance, and that more than one-fourth are still in California. There are no positive figures on those going "out of state" to determine whether they are "going back East," or going to some other western state, but we may be able to bring you some data from one plant's file to give you some idea on this.

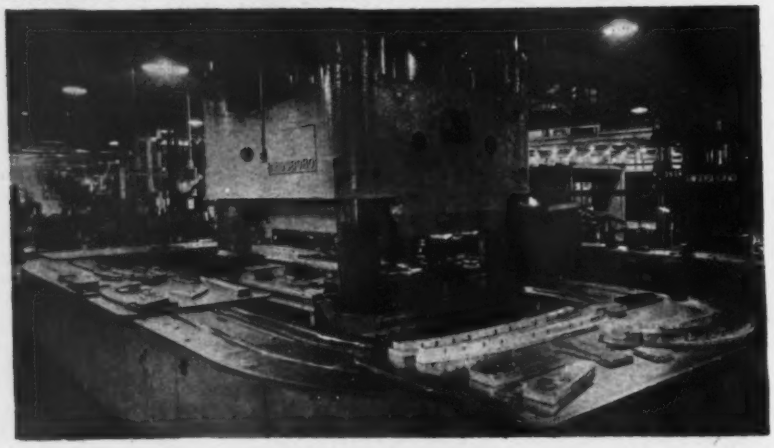
Horses and Absenteeism

The national news magazines that had war workers leaving Southern California in droves, also indicated that there was a great increase in absenteeism during the period that the horses were running. Just to keep the record straight, there was no increase. More plants showed a decrease than showed an increase, and the overall picture was a decrease. This was considered very good in view of the fact that absenteeism tends to show an increase at this time of year because of colds, flu, etc.

This is no defense of the race tracks, but merely to show that absenteeism and turnover are not problems that are easy to solve, and that it is difficult to draw any conclusions until you have all of the facts. Recent announcement that one shipyard will lay off 5280 workers, for example, would, if the war were going along fine, cause the same kind of scare created by a headline announcing 8,000 layoffs by one airplane plant earlier in the year. In both cases, it was a matter of certain contracts being completed.

Southern California produces in so many critical fields that the picture is always uneven. The demands of war, for example,

MERRY-GO-ROUNDS HAVE CHANGED



Convair keeps production moving by adopting the old Merry-Go-Round principle in conveying forms and material to their giant Hydro Press.

This Merry-Go-Round type conveyor was designed and built with the help of Engineering Products Co. Production has been greatly increased, time has been saved and maintenance costs reduced.

On Engineering Problems call Engineering Products

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made it advisable to speed up programs in certain plants terrifically. To meet the deadline, 10,000 to 12,000 additional workers were required. This quota wasn't met, and the deadline wasn't met, but the margin by which is was missed wasn't great. But—the contracts were completed, and there had to be layoffs of the workers hired to do the "speeding up," as well as others who were not needed on the new contracts secured.

Bi-Monthly Billing Saves $365,000

By changing from a monthly billing basis to bi-monthly in order to save manpower, the Los Angeles Department of Water and Power has found that it also saved $365,000 for the fiscal year ending July 1, 1944. Commercial division personnel was reduced 138 persons, an overall reduction of 21 per cent.

A case history of the experience has been issued by the War Manpower Commission from the reports of Homer C. White, commercial director of the Bureau as given to the American Waterworks Journal.

Here are some of the detailed savings:

Postage. More than a million less pieces of mail—$64,000

Paper and Printing. 3,450,000 less bills, 3,300,000 less ledger cards, 905,000 less courtesy notices.

Manpower. 138 less persons required for almost 900,000 active water and electric accounts. Service actually increased during the year.

Meter Reading. 37 per cent. Addressographing, billing, mailing, bookkeeping, office and field collecting reduced to a lesser degree.

Customers and the postoffice also saved. Estimated that domestic consumers saved half their postage and check writing expense, a saving of $80,000. Since the department was the largest user of the mails in the city, postal employees were relieved of a great volume of work.

The bi-monthly billing had no bad effect on collections, in fact write-offs were the lowest in history. Due to some extent to economic conditions.

Dovetailing War And Peace Items

An example of the dovetailing of war and civilian production without injuring the former is the spot authorization recently granted to the Filtex Corporation, Los Angeles. This firm was authorized to utilize down time on a military radio contract to make vacuum cleaners of the cylindrical tank type.

Their work on vacuum cleaners at the outset was expected to be limited to assembling parts that had been in stock since before the war. Whenever the war load tapers off, they intend to step up production on the civilian item, thus recovering by easy stages without need of losing a man or undergoing any painful transition period.

San Diego's Four Cushions

San Diego has four cushions between full employment and relief. The joint postwar planning committee of the San Diego Chamber of Commerce, which also represents the Committee for Economic Development in the area reports them as follows:

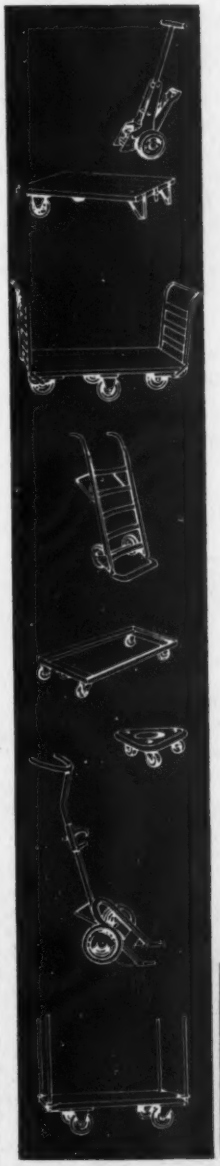
(1) The 600 million dollars in unemployment insurance premiums which have been paid in by employers and workers, and which the State Department of Employment estimates will take care of all postwar claims.

(2) The 100 million dollars in war bonds and cash which is safely tucked away in San Diego banks and in shoe boxes under the bed, which has wisely been saved by workers for a rainy day.

(3) A program of needed public works—not leaf-raking jobs—for which the city, county and state are ear-marking funds from these days of high tax revenues. This will provide much needed stopgap employment during the conversion period.

(4) The back-log of 10,000 homes per year in San Diego County, which will have to be built during the next two years and provide employment for 10,000 men.

HEADQUARTERS



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PAYNEHEAT
30 YEARS OF LEADERSHIP

Smaller War Plants Financing

Smaller War Plants Corporation placed 859 prime and sub-contracts for a total of $27,834,973 in the last half of 1944 in the San Francisco Region, comprising the states of California, Arizona, Nevada, and Idaho, according to the report of Hugh S. Jenkins, Acting Regional Director. These were new contracts, placed with plants most of whom otherwise would have been forced to shut down, wholly or in part.

Loans made totaled $1,531,300, and in addition machinery and equipment leases valued at $36,602 were made. Through the new policy of SWPC, small manufacturers whose funds are tied up in termination claims may obtain suspension of payments on principal and reduction of interest rates on loans in which a bank and SWPC are participants.

Great Foundry Capacity

Capacity of the 635 foundries in the West, if used only two hours a day, still exceeds a million tons a year and the potential capacity is much greater, according to A. J. Edgar, technical advisor to the Gray Iron Founders' Society, Inc., speaking at a recent meeting of the Northern California Chapter, American Foundrymen's Association. He was highly optimistic for the future of the industry in the West.

East-West Plan For Manufacturing

A recently-announced method of combining eastern and Western manufacturing operations in an assembly plant on the Pacific Coast seems to point the way for considerable postwar development along this line.

David C. Hammond, president of Pacific Fabricating Company, Huntington Park, Calif., announces "The Pacific Plan," by which the eastern manufacturer ships out the smaller units and precision parts of his product. They are assembled along with the heavier metal-fabricated parts made at the company's plant in the Los Angeles area.

Intentions for assembly operations on the Pacific Coast for export shipments have been discussed by various Western manufacturers.

More Mortar Shells

A second Army ordnance contract for approximately $3,500,000 for the manufacture of 90mm shells has been awarded the Kaiser Industries. This is in addition to the Army ordnance contracts in effect with Kaiser Industries for the production of 155mm and 8-inch shells in the Fontana, Calif., and Denver, Colorado, plants of the concern. The 90mm shells will be produced at Denver.

"Keep 'em rolling!"

—Let Stuart check your welding equipment

It's not only good business, —it's our *duty* to keep every tool working. You may get 10-20 per cent more output if your equipment is in tip-top shape. So, let us make a thorough examination; give an impartial report based on hundreds of shops like yours. No cost, no obligation; just part of Stuart service that has helped make us the largest California-owned manufacturer of Oxygen and other gases. We've *had* to be good to get that way!

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EFFICIENCY KINKS FROM WESTERN PLANTS

Production short-cuts • Worker's suggestions • Prize-winning awards

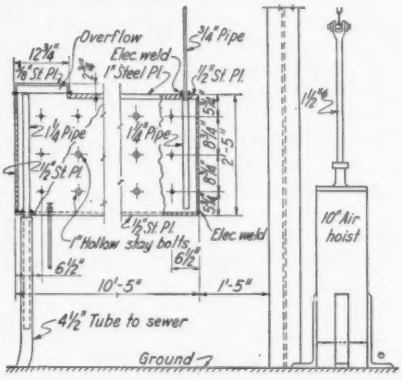
A water-cooled door for a boiler shop annealing furnace has been devised by Sam Scardino, boilermaker for the Rio Grande Railroad at Burnham, Colorado. Railroad officials, in awarding Scardino a $50 war bond for his valuable suggestion, believe that the new door should not require maintenance work for 20 years. The older type door warped and cracked so badly that it had to be repaired at regular intervals. This necessitated frequent shutting down of the furnace.

The door is a hollow shell 10 ft. 5 in. long, 2 ft. 5 in. high, and 4¼ in. thick, made of ⅜ in. steel plate, electrically welded along the edges. Three rows of 1 in. hollow stay bolts, with 14 bolts in each row, are spaced equally across the door in order to hold the front and back plates 3½ in. apart and thus prevent warping.

A ¾ in. intake pipe keeps the water level in the hollow door up to the top of a 1¼ in. outlet standpipe which extends up to within a short distance of the top of the inside of the door. The ¾ in. intake pipe extends about 3 ft. straight above the door and enters from the top side. It fits into a 1¼ in. pipe sleeve that is about 2 ft. 2 in. long and welded to the lower side of the top plate.

This permits the water to enter the shell from the lower end of the sleeve as the door is moved up and down. The 1¼ in. outlet pipe is welded to the top side of the lower plate and extends about 3 ft. past the lower side of the door into a 4½ in. straight pipe leading to the sewer. This allows the water to leave the shell by going down the standpipe while the door is being opened and closed.

A ⅝ in. chain fastened to two 1 in. eyebolts on the door and passing over two 8 in. pulleys, supported by a double channel member above the door, is operated by a 10 in. air hoist to raise and lower the furnace door. The double 4 in. x 8 in. channel member rests on two 4 in. x 8 in. channel posts, one on each side of the door opening.



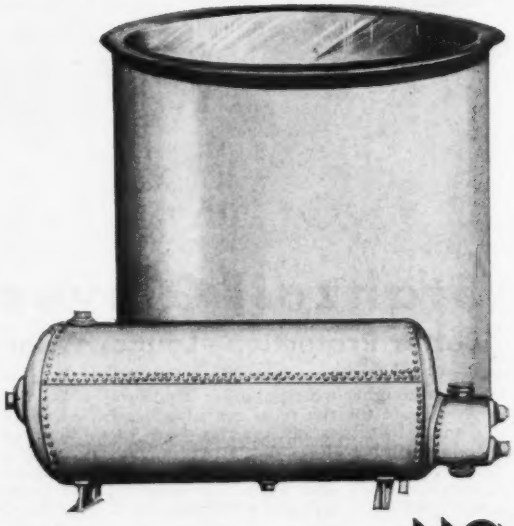
•Elevation & section of water-cooled door

A device for quickly and accurately finding the high spots at each end of a micrometer when measuring between two points won a $55 award for M. L. Happle, at the Vultee works of Consolidated-Vultee Aircraft Corporation. The device, a short metal sleeve with a wedge cut into one end, automatically places the end of a bar against the high point on the working surface when the bar is placed into the sleeve with the wedge against the working surface.

To drill holes in insulating material without cracking or wastage, use an ordinary twist drill with the cutting surface ground concave. This suggestion by F. W. Epperson of the Moore Dry Dock Company, Oakland, won him a $25 prize from the yard's labor-management committee.

Using a block and tackle to pull patterns in one of the Douglas plants has been found to eliminate the damaging of sand molds by the hand tools formerly used.

IN HOT WATER?



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follows the theory that the only SAFE method to eliminate rust and corrosion in steel containers is to remove the presence of the damaging oxygen in the water from contact with the steel.

Hebco Porcelain Tank Lining does this by making an impenetrable barrier approximately one-quarter of an inch in thickness on the inner side of the tank wall through which moisture cannot pass.

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A Few Sales Agencies Open

Puget Sound Trends And Transcriptions . . .

CURRENT industrial interest in the Puget Sound area is centered on the Boeing plants, where two-thirds of the future enormous production of the giant B-29's will be centered.

This, along with word that increasing port activity here will necessitate an increase in port and dock workers running up to 15,000 workers, indicates that overall industrial activity here will build up rather than slack down, even though new ship construction is practically over outside of the Todd-Pacific yards in Seattle and Tacoma. Moves are under way, however, to set plans more definitely for the use of the available repair facilities in the coming months.

That all effort is being made to use these facilities is shown in the announcement that a 2,800 ton concrete drydock will soon be installed at the Puget Sound Bridge & Dredging Co., where Navy ships have been built. At present the company is working on personnel barges for the Navy, but the addition of the large drydock will expand the facilities of the yard so that it will be capable of receiving a ship 400 feet in length.

The local Area Production Urgency Committee has achieved progress in changing the viewpoint of some interested agencies in the placing of contracts in this area with some smaller plants, staffed chiefly by older men and women; getting contracts that might have been placed elsewhere if all points of the Byrnes directive were followed to the letter.

There has been no change affected in the directive as far as it applies to this area, but when existing facilities are shown to be unused—and unusable both as to equipment and personnel in other necessary work—contracts have been made available. An achievement that seems a triumph of common sense over rigid rules that are not always applicable in a practical sense.

The transportation panel of the postwar products survey industrial committee has reported on its survey of possibilities for the manufacture of six major types of transportation here—types for which a substantial market exists in the West. The six are: railroad equipment, aircraft and aircraft parts, shipbuilding and repair, boatbuilding and repair, motorcycle and bicycle assembly, trailers and such miscellaneous items as wagons, sleds and wheelbarrows.

The transportation panel, headed by C. T. Bakeman, director of industrial development for the Puget Sound Power & Light Co., is one of a group of panels sponsored by the Seattle Advertising and Sales Club and the Association of Washington Industries. Others on this panel are: Prof. L. B. Cooper, chairman of the engineering committee for the survey; Theodore Howe, North Coast Transportation Co.; James Loutitt of the Industrial Bureau of the Seattle Chamber of Commerce, Howard Barnes of the Association of Washington Industries, and Kenneth Vosness and H. Barnum of Boeing Aircraft.

Heavy-Duty Trucks

An example of a transportation product made in this area for special use in the West is heavy-heavy trucks. Special equipment is needed for operations in the rough terrain of many parts of this section, and this equipment can be made and assembled here more economically than elsewhere, the panel points out.

The remainder of the eleven general types of transportation equipment got excellent ratings as to machine facilities and labor skills. The raw material rating, however, was only good to fair, depending on the importation of key parts. These five groups included assembly of truck bodies, commercial passenger vehicles, passenger cars in individual plants and assembly of

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passenger cars and locomotives in branch plants.

A comprehensive filing system has been adopted for the reports of the survey which will show at a glance the information compiled on any particular item. This information includes the knowledge of experts in each field for marketing, production methods, labor skills, machine facilities, competition and the promotion required for any article. When the survey is completed the information will be filed in a central place and made available for those interested in developing Washington manufactures.

At least 90 per cent of the state's postwar employment must be provided by private enterprise, it was stated by Pat Hetherton, the executive officer of the Washington state planning council, in a report to members of the 1945 legislature. Necessary and properly financed public improvements must supplement this if the goal of full employment for the entire labor force in the postwar area is achieved —a labor force larger than that of 1940, which was not fully employed, said Hetherton.

Prewar Analyses Will Be Out Of Date

Too often the analyses of Western postwar markets have been based on prewar factors, according to Chas. W. Collier, managing director of the Pacific Coast Advertising Association, speaking at the McCarran Committee hearing in San Francisco.

He said it was like the case of the San Francisco Bay Bridge, where estimates as to the part it would play in serving people were based on the number who formerly crossed the bay on ferries. It was found, however, that when the superior travel advantages provided by the bridge became available, many more persons crossed the bay than ever before.

As examples of postwar possibilities, he cited the survey of the Los Angeles metropolitan area, where it was found that only 15 per cent of the toys sold there were made in the West, only 25 per cent of the glassware, 5 per cent of the garden tools, and 30 per cent of the gas ranges. He said the West uses 13.5 per cent of the nation's radios and produces only 1.5 per cent, and uses 15 per cent of the refrigerators and makes only 2.8 per cent.

Calship Cuts Force

Calship workers, resuming Victory Ship construction after five months of Navy troopship building, have returned to the 8-hour, 3-shift day. The Calship payroll was expected to level off at 27,000 by the end of January, 5200 below the yards recent payroll. Turbines, gears and component parts for additional AP2s will not be received at the shipyard until July and later.

Postwar Los Angeles

Upon termination of the war, from 300,000 to 400,000 persons in the Los Angeles area will be looking for work and for a fairly long period large numbers will be unable to find it, according to Philip Neff, research economist for the Haynes Foundation, but there is a strong probability that these workers will be absorbed within a five-year period after the war is over. Total present labor force in the area is between 1,400,000 and 1,500,000 workers, he reports, while five years after the war it will reach an estimated 1,500,000 to 1,700,000.

Australian Mustangs

Production of the P-51 Mustang fighter —the world's fastest propeller-driven airplane—is to be started in Australia under license granted by North American Aviation, Inc. The license plan worked out through the U. S. Army Air Forces called for delivery of parts and sub-assemblies sufficient to build a certain number of Mustangs, and complete sets of detailed component parts and accessories for a number of additional Mustangs, after which the Australian plant will produce its own parts.

4,002,657

HEALTHFUL BALANCED MEALS SERVED *INPLANT* WORKERS IN 1944

The Alan T. Hudson Organization will be available after February 1, 1945, to serve in the capacity of Industrial Feeders to some firm in California who desires the services of an experienced organization *intact* to take over the job of quality service.

Changes in government procedure relative to operators in the VII Federal Housing Region relieves our organization of its duties of feeding Kaiser Company workers at Vancouver, Wn., Hudson House effective this month. The Alan T. Hudson organization has long been associated with both private and industrial feeding. References furnished upon request.

Our staff includes: 1. General Operating Manager. 2. Purchasing Agent. 3. Food Cost Accountant and Methods Expert. 4. Sales Service Supervisor. 5. Production Manager. 6. Chief Steward. 7. Dietitian and Nutritionist. All or any departments are available depending upon the volume needed.

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ALAN T. HUDSON Organization

Industrial Feeding

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LABOR
AND THE INDUSTRIAL WEST

Rulings by San Francisco Regional War Labor Board Reveal an Ominous Trend

TO GET a view of the trend of decisions by the 10th Regional War Labor Board in San Francisco a review of some recent dissenting opinions written by William B. Tyler, industry member and general counsel for California & Hawaiian Sugar Refining Corporation, will serve to throw considerable light on the situation. It is not an encouraging one for industry, which is constantly in a minority on a so-called tripartite board because those who nominally represent the public in fact lean heavily toward the labor side.

But once in a while there is a gleam of sunlight, and the latest came as a sort of Christmas present from Fred L. Vinson, director of economic stabilization. Because a price increase in canned goods would eventuate, he refused to approve a night shift differential in the canning industry in California without further justification than the Regional Board in San Francisco had offered.

"Unless a detailed comparison with night shift differentials in the area and a detailed analysis of the operations of cannery night shifts and the total wage increase resulting from the differential in this case will justify it," he advised the National War Labor Board, "I cannot approve the differential."

In reply to Mr. Vinson's request, the regional board, by majority action (industry members dissenting) addressed a reply to the National Board—but without either the "detailed comparison" or "detailed analysis" that Mr. Vinson wanted.

Just as if they had never heard of Mr. Vinson, the majority of the regional board again ordered another night shift differential for the dried fruit packing houses in Santa Clara and San Benito counties on the ground that the industry bearing the closest relation to dried fruit packing is the canning of fruits and vegetables "where a night shift differential of 7½ cents after 7:00 p.m. is paid." Whether Mr. Vinson's action in throwing the regional board on a sidetrack will in turn be nullified in the shrouded mystery where still higher authorities in the New Deal operate of course remains to be seen.

Cards Stacked Against Industry

The prejudiced conditions under which the industry members of the regional board must operate are well exemplified in the recent case of Sunset McKee Company and the Oakland Typographical Union. There the chairman or so-called "public member" of the panel was a staff member of the board whose selection either as a hearings officer or a public panel chairman by the public members had not been approved by the tri-partite divisions of the board, despite the national board's rules of organization and procedure. The excuse of the chairman of the Tenth Region was that the rule "does not apply to regional boards."

This de facto chairman had been approved by labor and industry only in the capacity of an assistant director of review. His background and training had been on the side of labor, Mr. Tyler pointed out, and while sitting on this case his wife was financial director of the California Labor School and an organizing director of a CIO union. Since then this

HEADQUARTERS

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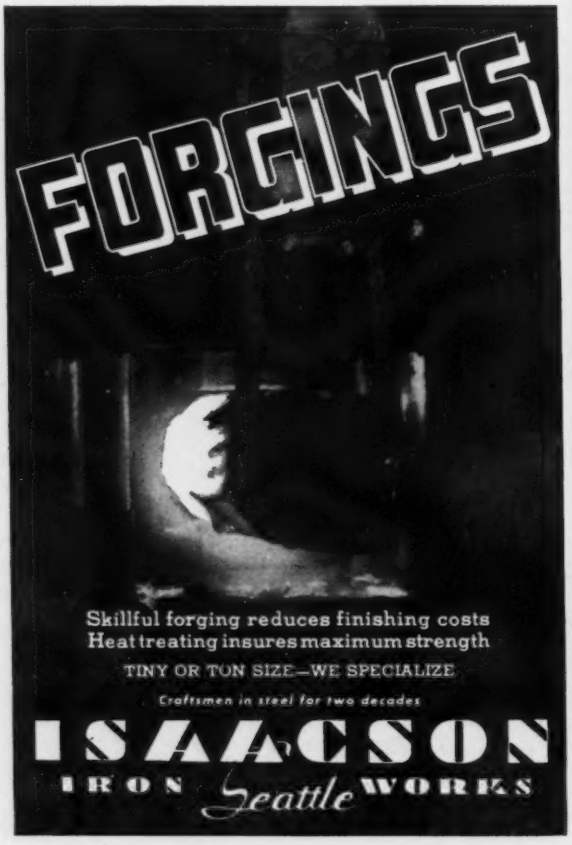


man resigned from government service and returned to the practice of law with one of the larger labor law offices in San Francisco which represent unions.

"Since the Sunset McKee case was before the regional board, but before the dissent was drafted, public and labor members and one industry member voted to approve as public members of panels all staff employees who heretofore had functioned as such without tri-partite approval," declared Mr. Tyler, "hence it may now be assumed (at least in this region), that industry may no longer veto individuals who might be distasteful to industry as public panel members. It is urged that the national board clarify policy on this point."

As to the way in which the case was settled, the dissenting opinion calls attention to the fact that both sides orally presented a statement of facts and argued the merits thereof, but no job comparisons, job descriptions or proof of job content were introduced or required by the panel. "The chairman and the labor members of the panel then decided that all of the union's facts and arguments were right and all of the employers were wrong," according to the dissent. "When the case came before the Board, the public members voted with labor that there was evidence to support the panel's finding."

Take It And Like It

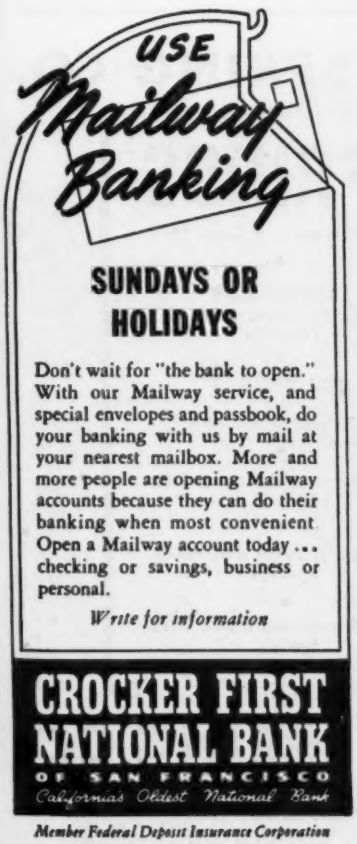
The majority decision in the case of the Super-Bilt Furniture Manufacturing Co., of Los Angeles and the United Furniture Workers of American, Local 576, CIO, is, according to the industry dissent, "the most astounding and revolutionary directive yet issued by this regional board." The employer was ordered to include in a first contract with a union:

(1) Provision for "a health, hospital and physician's service plan" and to bear 60 per cent of the cost thereof.

(2) Provision that if the employer contracts work out to other shops he must do business with union shops only, and preference shall be given to CIO unions.

The "memorandum opinion" of the public members gives as the reason for this order that both provisions are found in the master agreement covering the industry in the Los Angeles area. There is no master agreement, according to the dissenting opinion and two-thirds of the employees in the industry in the area are under AFL contract which does not contain these two disputed provisions.

"This is not a plan to secure and indemnify a worker against industrial hazards," asserts the dissenting opinion. "Nor is it a plan which bears in the remotest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degree on wages, hours or working conditions. It is a plan designed solely to provide personal health, hospital and physician's service to an employee who may be absent from his employment because of any personal illness, whether or not such illness is associated with his conditions of employment. It is a plan which would foist upon the employer more than half the cost of personal insurance of an employee."

Pointing out that the majority opinion providing for farming out work only to union shops, preferably CIO, in effect creates a secondary boycott, the dissent says:

"The proposed provision appears to violate that portion of the Sherman Anti-Trust Act which prohibits restraint of trade. Indeed, the provision would not permit the employer to award farming out contracts to a lowest bidder unless such bidder had a contract with a CIO union and abided thereby during his performance of his contract with this employer.

"Furthermore, if he is now doing business satisfactorily with contractors who bargain with AFL unions, or who do not bargain with any union, he must nevertheless throw them to the wolves and trade henceforth only with contractors organized by the CIO."

Despite the fact that it is not the policy of the National War Labor Board to order preferential clauses in initial contracts between unions and employers, and that they have rarely if ever been ordered where previous contractual relations have existed between the union and the employer unless such clauses had heretofore been in effect, the Regional Board ordered that a preferential hiring clause for the CIO be inserted in the first contract to be drawn up involving four citrus packing sheds in Tulare County, California.

A $10 a month night shift differential was granted the Alameda County Nurses Association on the ground that it was justified by the recent decision of the National Board in the basic steel industry. But the dissenting industry opinion points out that a premium for night work for nurses is not customary anywhere, and says further:

"The National Board by precedent and by explicit instructions, has established the policy that in granting night shift differentials, Regional Boards are to be guided by industry and area practice. . . . We regard this as a flagrant case of disregard for the wage stabilization policies which are supposed to guide this Tenth Regional Board."

Dinner Allowance For Store Clerks

Several thousand Seattle department store employees who work one night a week have been voted a 75-cent dinner allowance by the 12th Regional War Labor Board in Seattle with industry members dissenting. Stores stay open one night a week for war workers' shopping.

The Board denied a request for elimination of work before 9 a.m. and after 6 p.m., and the dinner allowance is to be extended only to those who are called back to work after dinner or who are required to work one or more hours after 6 p.m.

The dispute involved employer members of the Seattle Department Stores Association and members of a number of A. F. of L. locals.

In line with NWLB policy, the Board awarded one week's vacation with pay after one year's service and two weeks after five years.

Issues referred back to the panel for further consideration are: pay for attendance at store meetings, the elimination of peak weeks and inventory time now paid for at straight time hourly rates and a request for a premium rate of 10 per cent over the minimum rate for 4 five-year journeymen. Requests for sick leave and general wage increases were denied.

Seattle Board Generally Upheld

Ninety per cent of the 12th Regional War Labor Board directives in dispute cases have been upheld by the NWLB, Elizabeth Brown, board appeals agent and administrative assistant to the Chairman, has announced.

In a yearly report to Chairman George Bernard Noble, Miss Brown pointed out that out of 164 dispute cases processed by the board during the past year, about 60 have been appealed to the NWLB after which review has upheld all but 10 per cent of the regional board's decision.

Diesel Engine Men Meet With Educators

A close-up picture of Diesel engine manufacturing on the Pacific Coast will be shown February 8 to engineering instructors of Western universities, who will assembly in San Francisco for a tour through the Bay area sponsored by the Diesel Engine Manufacturers Assn. It will include trips through the Enterprise Engine & Foundry Co. of San Francisco, and Atlas Imperial Diesel Engine Co. and Union Diesel Engine Co. of Oakland.

Also on the day's tour program is a lunch at Oakland, to be followed by a discussion period during which educators will tell how the manufacturers could help them in the way of providing films, slides, literature and engine parts for classroom instruction. The manufacturers, in turn, will describe the type of graduate who is best equipped to enter the Diesel industry.

Among those who will represent the manufacturers are Charles G. Cox, vice-president of Enterprise, and Roy A. Hundley, chief engineer; F. H. Kilberry and G. F. Twist, president and vice president, respectively, of Atlas; O. H. Fischer, president of Union; Harvey T. Hill, of Chicago, executive director of the Diesel Engine Manufacturers Assn.; and Prof. Robert B. Rice, educational consultant.

Ninety-six per cent of the country's output of Diesel engines west of the Mississippi River is concentrated in the Bay area, where an estimated 500,000 horsepower in Diesels was manufactured in 1944, to a valuation of some $50,000,000.

Wickwire-Spencer Buy Colo. Fuel & Iron

Colorado Fuel & Iron Co. has become affiliated with the Wickwire-Spencer Steel Co. interests, through purchase of the Rockefeller family holdings in CF&I by a Wall Street syndicate. This also involves sale of the California Wire Coth Co. of Oakland and Los Angeles, a CF&I subsidiary. The Rockefeller holdings at present market quotations were valued at around $13,000,000.

Wickwire-Spencer, makers of steel specialties, have plants at Buffalo, N.Y., Worcester, Mass., and Blue Island, Ill. The announcement by Charles Allen Jr., chairman of the board of Wickwire-Spencer and head of the New York investment house of Allen & Co. said that the interest of John D. Rockefeller, Jr., and Rockefeller Center, Inc., consisting of a controlling interest of 283,980 shares of common stock and $5,747,600 of CF&I bonds had been purchased by Allen & Co. and associates.

First announcement said there were no present plans for consolidation of the two steel organizations.

Lockheed 1945 Schedule Greater

Lockheed Aircraft Corporation started the New Year with a billion dollar backlog of military orders totalling more than 6,632 units. Its 1944 output was 5,858 war planes, an average of more than 112 a week, and production manhours on P-38's and B-17's was cut 38% during the year.

Spare parts delivered to the armed forces in 1944 totaled 12,700,000 pounds. Work was begun several months ago on a 408-302 foot hangar at the Lockheed Air Terminal at Burbank, a million-dollar structure which will house an important Navy project.

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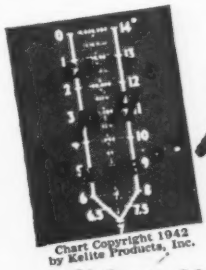

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THE PICTURE

Lumber and copper seem to be the industries most affected by manpower shortage, although the former has made a remarkable showing despite the handicap. Closing down of one copper smelter indicates the situation in the latter. In the shipyards and aircraft factories there has been some leveling off in employment, although Maritime Commission yards on the Pacific Coast lost about 4 per cent in December. After several months of declining production, the aircraft poundage finally showed an upturn in December. Cement production in California and the intermountain area reached a high for the year so far in October, the last reported month.

Lumber—*Decrease Expected*

West Coast lumber production for 1944 amounted to 7.9 billion board feet, coming within 20 million feet, or 2½ per cent of the 1943 production figures, although the national total of production fell off 10 per cent, according to the West Coast Lumbermen's Association. This fine showing for the West Coast was made possible by extremely heavy and well sustained output of logs and lumber in the winter and spring months, but in the last half of the year production dwindled. Since WPB controls were stiffened in December in conformity with increased military demand, all West Coast mills, except the red cedar producers, can now only sell on certified orders under the Controlled Materials Plan. The Western Pine Association expects a reduction of 10 per cent from 1944 in the first quarter shipments of pine in 1945.

Cumulative figures for 43 weeks in 1944 and previous years in thousands of board feet reported by the West Coast Lumbermen's Association are as follows:

	1942	1943	1944
Production	8,507,537	7,918,401	7,902,289
Orders	10,031,421	8,396,277	8,196,752
Shipments	8,635,129	8,157,702	7,923,966

Western Pine Association figures covering Idaho White pine, Ponderosa pine, Sugar pine and associated species for 1944 are as follows:

	1943	1944
Orders	2,803,646	2,677,382
Shipments	2,837,946	2,684,912
Production	2,626,713	2,547,660

Iron—*Another Gain*

After a sharp recovery in October, iron ore shipments in the West again moved upward in November, almost reaching the previous peak of May. Bureau of Mines figures are as follows:

	Utah	Wyoming	Calif.	Total
May	134,733	70,535	54,477	259,745
June	93,699	64,652	63,055	226,406
July	126,514	47,962	60,908	235,384
August	134,742	35,721	52,426	222,889
September	129,586	47,119	32,596	209,301
October	145,157	39,161	54,545	238,863
November	127,855	48,378	71,034	247,267

Pig iron and steel production for the Western area of the United States are reported by the American Iron and Steel Institute in net tons as follows:

		Percent of capacity	Year to date	Percent of capacity
Pig Iron				
Oct.	155,824	64.7	1,416,538	66.4
Nov.	143,838	61.7	1,560,376	65.9
Steel				
Nov.	320,186	84.9	3,224,766	81.4

Aircraft—*Upward Turn*

After several months of continuous decline in number of planes produced—and also total poundage from the Pacific Coast plants—December figures showed a turn upward. Unauthorized guessing might say this was due to the sudden jolt the nation experienced in December after several months of unconscious easing up. Annual production figures from the Aircraft War Production Council showed that the Coast plants produced 12 per cent more poundage in 1944 than in 1943, and that they were responsible for one-fourth of the nation's total output. Scheduled output for 1945 has been increased 4 per cent over earlier schedules. Change-overs in models all down the line were in process through 1944, some plants going from B-24s to B-32s, others from B-17s to B-29s and still others to entirely different models. There was an increase in speed and firepower, which with many minor changes contributed to the lesser output in the latter half of the year.

Figures from the Western Procurement District, Air Technical Service Command, are as follows:

	No. of Planes	*Total Poundage*
January, 1944	2,559	31,892,000
February	2,569	32,469,000
March	2,703	36,015,200
April	2,295	30,993,000
May	2,569	34,234,000
June	2,276	32,284,500
July	1,890	26,909,100
August	1,930	26,391,000
September	1,802	26,293,000
October	1,609	21,960,000
November	1,499	20,821,000
December	1,488	21,035,000

Figures beginning July, 1944 are for planes reported complete after modification, instead of on leaving factory, as previously.

War Production Contracts—*Reduction in November*

In Thousands of Dollars—Source: War Production Board Statistical Division

NOTE: *The monthly award figures shown below represent only an approximation of the actual contracts, because cut-backs and cancellations are usually on previous awards, although reported in the current month. Also there is considerable lag in the reporting of individual contracts. However, WESTERN INDUSTRY is reporting the monthly awards by the successive subtraction method as an approximation.*

	MONTANA	IDAHO		WYOMING	COLORADO			N. MEX.	ARIZONA			UTAH		NEVADA	
	All Other	Ships	All Other	All Other	Aircraft	Ships	All Other	All Other	Aircraft	Ships	All Other	Aircraft	All Other	Ships	All Other
January	....	...	370	1,280	...	...	125,636	824	....	112	66	...	778	...	88
February	1,384	...	52	7,858	...	—241	—374	...	....	208	175	...	195	...	5,286
March	34	...	50	692	98	119	3,069	573	9,396	...	203	...	1,076	...	1,386
April	....	29	...	13,000	..	520	—1,506	—653	. ..	...	660	...	169	...	3,621
May	....	53	121	—12,638	250	...	6,022	161	300	...	...	53	818	...	1,274
June	....	...	....	12,833	...	800	230	3,946	10,300	...	151	...	2,084	...	2,377
July	2,114	...	2,556	10,558	63	62	1,965	3,463	600	...	308	...	388	...	3,515
August	4,282	75	5,998	—2,993	—1	—32	305,077	2,743	209	...	844	...	150,198	...	—1,031
September	211	141	220	1,016	52	....	2,200	....	100	401	3,716	...	400	...	1,623
October	135	...	329	1,620	..	139	803	....	—57	...	64	...	240	...	281
November	95	80	533	740	...	...	2,459	101	..	206	454	...	49,550	...	863
Total from June, 1940	14,080	787	5,955	39,224	1,828	3,739	97,405	9,528	59,347	944	28,161	900	221,691	156	33,721

	WASHINGTON			OREGON			CALIFORNIA			TOTAL		
	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other
January	....	1,549	23,782	...	7,803	12,600	2,390	280,712	46,041	2,390	290,176	211,462
February	....	84,257	—74,558	...	6,602	—760	221,910	142,683	26,174	221,910	233,509	—34,568
March	—79	—226,602	—16,553	—169	3,136	—5,133	397,502	—42,828	79,517	406,748	—266,175	64,824
April	490,785	40,671	9,235	...	6,511	14,297	698,106	13,609	75,277	1,188,891	61,340	117,263
May	...	12,082	—6,785	...	39,430	10,088	—525,545	11,923	19,835	—524,942	63,948	—1,230
June	....	153,182	22,865	...	102,046	2,288	280,488	121,304	102,759	290,688	377,332	149,533
July	145,057	158,458	21,849	...	14,897	3,611	203,772	65,000	—241,266	349,492	238,417	287,073
August	714,598	—13,227	119,172	...	28,607	15,206	189,082	—108,152	—12,134	903,890	150,093	616,875
September	82,689	6,287	70,190	...	2,081	5,057	122,840	44,758	32,032	205,681	53,668	116,665
October	....	—15,877	14,475	...	—171	805	—169,020	—13,111	40,631	—169,070	—30,020	59,383
November	133	38	12,205	357	15,689	7,554	—71,414	—27,822	33,102	—70,924	—11,809	106,856
Total from June, 1940	1,885,970	2,071,797	315,748	1,390	1,288,683	140,977	9,747,460	4,375,284	1,614,555	1,835,237	7,657,520	2,290,305

Electric Energy—*November Output Lowest of the Year*

Production of Electric Energy for Public Use—In thousands of Kilowatt Hours—Source: Federal Power Commission

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mtn.	Washington	Oregon	California	Total Pacific
January, 1944	223,286	94,952	19,417	96,960	42,346	290,005	57,904	331,055	1,155,925	964,314	406,851	1,281,484	2,652,649
February	202,057	84,639	18,023	87,611	37,891	291,969	50,490	314,546	1,087,226	928,634	376,321	1,200,331	2,506,286
March	212,801	104,566	18,822	89,928	40,994	286,847	46,275	324,633	1,134,866	943,429	402,195	1,322,532	2,668,156
April	189,958	122,178	18,793	85,954	42,287	284,140	33,462	262,097	1,038,849	890,599	370,914	1,372,445	2,632,958
May	190,926	113,473	19,454	87,365	41,077	297,189	38,291	284,604	1,071,379	854,064	417,654	1,397,484	2,669,202
June	191,704	104,360	22,250	84,548	42,172	285,599	38,255	271,433	1,071,529	854,031	417,654	1,401,465	2,620,580
July	217,474	127,101	24,459	87,399	44,306	331,454	24,390	256,538	1,113,121	779,929	438,373	1,521,569	2,739,871
August	220,673	128,274	30,999	91,641	47,468	357,053	25,137	272,598	1,173,843	781,757	466,110	1,451,720	2,699,587
September	192,753	105,757	23,160	88,678	42,763	343,750	24,431	229,951	1,051,249	780,323	386,453	1,304,797	2,471,573
October	203,033	81,574	19,303	93,893	41,834	354,936	30,867	236,822	1,062,262	811,621	387,819	1,238,409	2,437,849
November	203,018	84,341	19,906	92,238	42,279	328,633	32,598	225,128	1,028,141	842,403	364,857	1,157,242	2,364,502

Employment —*Eleven Western States*

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

ALL INDUSTRY DIVISIONS

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Mountain	Washington	Oregon	California	Total Pacific
January, 1944	110	95.0	60.6	265	76.4	108.4	150	40.4	906	644	334	2,635	3,613
February	109	94.1	60.8	265	76.8	108.6	147	40.0	901	638	333	2,629	3,600
March	109	95.5	59.4	259	76.4	108.2	142	39.9	889	636	332	2,605	3,573
April	110	94.7	59.9	259	77.5	108.7	145	40.6	895	633	330	2,614	3,577
May	110	95.6	61.8	262	78.2	107.9	145	41.5	902	632	331	2,590	3,553
June	111	95.6	63.3	264	79.1	107.6	144	41.4	906	637	337	2,581	3,555
July	110	95.1	62.6	265	79.5	107.0	155	41.6	916	645	336	2,599	3,580
August	110	94.1	62.9	264	79.7	105.9	154	41.5	912	643	342	2,617	3,602
September	109	97.6	62.2	267	79.4	105.2	151	40.3	912	650	544	2,591	3,585

MANUFACTURING

January, 1944	13.9	12.8	3.7	53.7	4.8	15.9	22.4	4.6	132	267	139.1	1,016	1,422
February	13.8	12.6	3.8	53.5	4.8	15.4	20.8	4.5	129	264	136.6	1,008	1,409
March	13.7	13.0	4.0	47.9	4.8	15.7	18.8	4.2	122	262	134.9	987	1,384
April	13.4	13.2	4.2	46.4	4.9	16.4	21.1	3.8	123	255	131.2	978	1.367
May	13.3	14.2	4.1	47.2	4.8	16.3	21.8	3.4	125	255	132.5	954	1,342
June	13.3	15.0	4.4	48.0	5.0	17.0	23.1	3.2	129	259	136.4	934	1,329
July	13.1	16.0	4.4	49.2	5.1	16.4	34.2	3.0	141	268	137.1	953	1,358
August	13.2	14.3	4.7	47.7	5.1	16.9	33.0	3.0	138	264	141.6	964	1,370
September	12.9	17.3	4.7	47.2	5.1	16.8	29.9	2.6	137	267	144.8	942	1,354

Signs of stabilizing begin to appear in the November figures from the California Division of Labor Statistics. Although a seasonal lay-off of more than 22,000 cannery workers brought the non-durable goods industries down to 199,100 production workers, the level in November was more than 9,000 above a year ago. The 5,700 decrease in durable goods workers was the smallest month-to-month contraction in 1944, and compares with an average reduction of 13,000 workers a month for the first ten months of the year.

In the aircraft plants the loss for November was 3,100, the smallest monthly decrease all year, bringing the factory force in that industry down to 158,300.

Shipyards, excluding government yards, employed 224,100 wage earners, a decrease of 500 from October, but in the Los Angeles area the downward trend was reversed, there being a gain of 300. In the San Francisco area the decrease was only 400, compared with decreases earlier in the year as high as 7,500. Increases in chemical and apparel industries in the Los Angeles area amounted to 200, bringing the current employment up to 3,800, or more than 4 per cent higher than a year ago.

EMPLOYMENT—DURABLE GOODS INDUSTRIES
(Figures from Calif. Div. of Labor Statistics)

	San Francisco Bay Area	Los Angeles Indus'l Area	Total State
Jan. 1944	221,200	369,200	698,800
February	218,600	363,600	689,600
March	212,100	354,700	670,900
April	205,000	347,900	655,700
May	202,200	339,400	645,100
June	196,700	325,500	625,400
July	192,000	320,900	616,700
August	189,200	315,700	605,400
September	188,500	301,400	585,800
October	184,300	295,800	486,100
November	183,500	291,700	568,900

Copper—*Acute Labor Shortage*

Domestic mine, smelter and refinery outputs of copper in 1944 fell below the high record rates established in 1943, according to the Bureau of Mines, declines for the three ranging from 9 to 12 per cent. Labor shortages were chiefly responsible, because copper was in only slightly less demand than in 1943, and bonus payments for high-cost domestic production continued to be paid. In 1942 and 1943 the Army released soldiers to bolster employment in the mines, but in 1944 not only was such action missing but draft demands covering miners became more stringent. Primary production at the end of 1944 was at the lowest level that has prevailed since the third quarter of 1939. Production of the combined Western states in November decreased 4,478 tons or 6.6 per cent from October, due mostly to a loss of nearly 3,500 tons of recoverable copper from Arizona. The Magna Copper Co. smelter at Superior is closed because of lack of labor and it is believed will remain closed until sufficient permanent labor can be obtained.

Production figures from the Western states, in short tons, are as follows:

	Ariz.	Mont.	Utah	Tot. Western, including other states
Jan.-March	102,224	35,421	79,046	255,624
April	33,967	10,683	24,345	82,822
May	33,832	10,668	24,979	82,108
June	31,369	8,969	23,421	77,964
July	28,067	8,130	22,000	77,964
Sept.	25,683	8,523	21,947	69,115
Oct.	26,322	9,067	21,225	68,109
Nov. (prelim.)	22,850	8,750	20,500	63,631

Ships—*Year's Figures*

Total 1944 tonnage delivered from Pacific Coast Maritime Commission yards was 6,176,000 deadweight tons, a decline of about one-third from the 1943 figure of 6,176,000 tons, when the Liberty ships were being delivered like hot cakes off a griddle. December figures, which include 56 keels laid, reflect tailing off of attack transports, a few of which remained to be delivered in January.

	Launchings Ships	Deliveries Ships	Thousands of Deadwt. tons
January 1944	76	67	633
February	59	59	585
March	61	73	679
April	66	64	641
May	60	72	693
June	50	55	516
July	58	38	399
August	41	32	295
September	46	44	407
October	56	51	401
November	54	60	489
December	54	53	434

(Includes destroyer escorts and small aircraft carriers, but not larger naval vessels built by the navy itself. Also includes concrete barges, but not tugs or wooden barges. Tonnage figures from September on are adjusted, previous months unadjusted. Deadweight tons are used as a rough measure of the cargo carrying capacity of the ship. All figures from U. S. Maritime Commission statistical department.)

Oil—*Another Gain*

Crude run to stills in the Pacific Coast territory in November reached a new high record of 842,000 barrels daily (including 10,000 barrels daily run to cracking mills). Total demand for all products increased 47,000 barrels daily to 992,000 barrels daily, while total supply increased only 3,000 barrels daily to 962,000 barrels daily, and 30,000 barrels daily were withdrawn from storage. Gasoline demand in November of 328,000 barrels daily increased appreciably over both the October 1944 demand of 313,000 barrels daily and November 1943 demand of 309,000 barrels daily.

Total demand (domestic demand is not available for publication) for all products for the eight months of 1943 and the first eleven months of 1944, is shown below.

	All Products (Bbls.) 1943	1944
May	852,000	900,000
June	973,000	969,000
July	918,000	884,000
August	983,000	883,000
September	992,000	902,000
October	987,000	945,000
November	962,000	992,000
December	1,022,000	----------
Jan.-Nov. Average	904,000	950,000

Cement—*Slight Gain*

Production in California and the intermountain districts was slightly up in October over September.

	—California—		Oregon-Wash.		Colo.-Wyom. Mont. Utah - Idaho	
	1943	1944	1943	1944	1943	1944
May	1,701	1,260	501	323	449	206
June	1,597	1,108	474	511	390	249
July	1,482	1,312	461	454	410	237
Aug.	1,489	1,188	481	421	358	248
Sept.	1,469	1,360	502	378	382	280
Oct.	1,603	1,439	479	319	368	329
Year to date	16,206	12,267	4,393	3,763	3,452	2,155

THE TREND

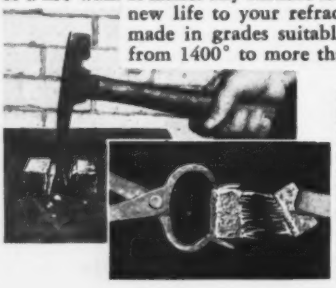
Despite the gloomy Christmas season feeling due to the setback of the allied armies on the western German border, speculation is again coming to the surface as to whether there will be relaxation of controls over building construction, with a feeling that if the Germans should collapse suddenly (and at this writing the Russian steamroller was in high gear) there might be an easing up both for industrial and residential construction purposes. Another factor that may be of great influence is the decision at Washington regarding control of the RFC and other government lending agencies.

Demonstrating BRICKSEAL REFRACTORY COATING

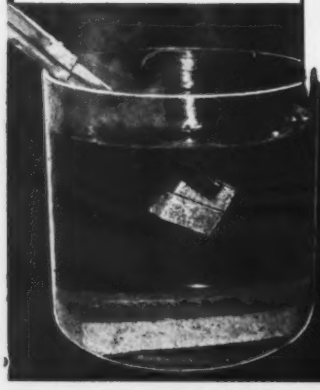
Small firebrick were painted with Brickseal and heated to 2250° in this furnace and plunged directly into cold water.

HEATED TO 2250°

Brickseal provides a crackproof vitrified armor for furnace linings. *Semi-plastic when hot,* yet *hard and tough when cold,* Brickseal enters the pores, cracks and joints of a fire wall. It makes any furnace last longer by giving new life to your refractories. Brickseal is made in grades suitable to heats ranging from 1400° to more than 3000°.



At the left, the elastic qualities of Brickseal when used as a bond are shown by pulling the hot bonded bricks apart. Struck with the hammer, a Brickseal bond is stronger than the bricks themselves.



DOUSED IN COLD WATER

White hot bricks coated with Brickseal were plunged into cold water without affecting the brick in any way. Ask for a demonstration.

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PORTLAND	K. B. Bonsall, 1233 N.W. 12th Ave.—BR. 0561
CHICO	Don L. Buckman, P.O. Box 278—2298-W
SAN FRANCISCO	Walter Harris, 200 Davis St.—DOuglas 8590

THE WEST ON ITS WAY

CALIFORNIA

BUILDING PURCHASE—Decca Records, Inc., of New York City, has purchased a four-story building with 52,000 square feet of floor space at 960 North La Brea Avenue, Los Angeles, for the manufacture of phonograph records as soon as wartime restrictions are eased.

PLANT ADDITION—Fruehauf Trailer Company is spending $78,939 for an addition to its assembly plant at 5137 S. Boyle Avenue, Los Angeles, for the manufacture of heavy trucks and trailers.

UNITS ADDED—Ryan Aeronautical Company is to add to its plant at San Diego two main units—one, a huge sub-assembly manufacturing building and the other a 330-foot two-story office building. Fighting plane assemblies are to be built in the new factory structure. A new surfaced parking lot of 569,000 square feet will accommodate hundreds of additional automobiles driven by the 3000 new workers being hired under Ryan's expanding employment program.

CONTRACT AWARD—Marinship Corporation has been awarded a new shipbuilding contract by U. S. Maritime Commission for construction and delivery of four additional Navy oilers, making a total of 19 Navy oilers in addition to the 72 other vessels which Marinship has undertaken to build in the past two and a half years.

CONTRACT AWARD—Foster & Payne of Berkeley have been awarded a $12,957 contract by the Board of Supervisors for the rebuilding of the Port Chicago Memorial Building.

PROPERTY ACQUIRED—The Money-Back Smith Company has acquired property on the southwest corner of Broadway and Hobart Street at a purchase price of about $300,000.

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He's the Spencer & Morris field man, ready to help you in the development of your handling installations for the extremely competitive era post-war.

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CONTRACT AWARD—California Shipbuilding Corporation has been awarded a $35,000,000 contract for construction of sixteen Victory ships by the U. S. Maritime Commission.

PROGRAM SUBMITTED—A program submitted to the State Finance Department to modernize and expand California's prison and correctional school system at a cost of more than $15,000,000 has been prepared for inclusion in the State of California's postwar construction plans.

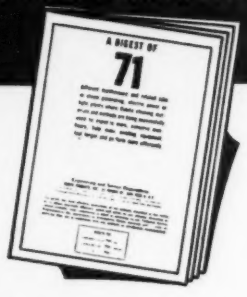
PLANT EXPANSION—Plans have been made to expand the Kaufmann Meat Company's plant at Berryessa Road, San Jose, representing an investment of from $300,000 to $350,000.

CAFETERIA—Financed by the Defense Plant Corporation, work has begun on four $600,000 cafeterias to provide hot meals for workers on the San Francisco waterfront, the food to be supplied to the four waterfront establishments by a central kitchen located near Third and Townsend Streets.

NAVY APPROVAL—The following Public Works projects have been approved by Secretary of Navy: Procurement and installation of surface ship training equipment at Naval Drydocks, Hunters Point, in the amount of $30,129; building for housing and servicing locomotives, extension of services at the Marine Corps Depot of Supplies, Islais Creek, San Francisco, in the amount of $70,000; construction of grading and paving, parking sheds, paint sheds, repair shop and welding garage, inflammable materials storage, fencing, gates and sentry box, water supply, sewer and electric services, and alterations to garage; filling station and equipment at the Naval Overseas Freight Terminal, San Francisco, in the amount of $77,220; construction of fire alarm system in Market Street buildings at the Receiving Barracks, San Francisco, in the amount of $7,500.

LEASE—Drayer & Hanson, Inc., Los Angeles, manufacturer of heat exchange equipment, has leased the entire building formerly occupied by the Los Angeles Lighting & Fixture Company, 767 East Pico Blvd.

71 Ways to Expedite Power Plant Maintenance



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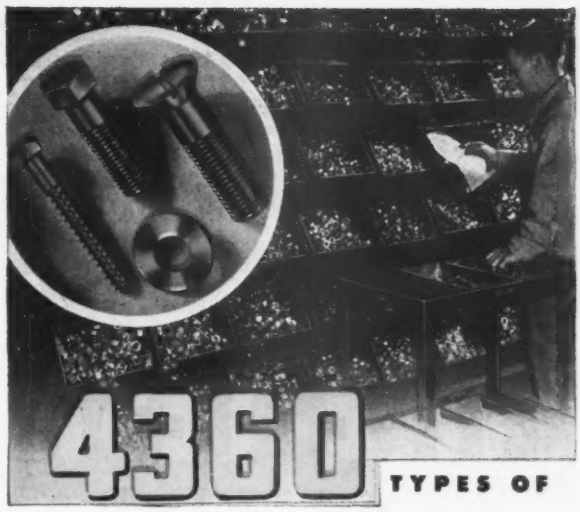
OAKITE CLEANING — Buy Bonds for Victory



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THE WEST ON ITS WAY

ADDITION—American Pipe & Steel Co., Alhambra, will build an addition costing $38,000 to increase production of invasion pipe.

LABORATORY—Forest Products Laboratory, Berkeley, is planning to build a new laboratory to cost $500,000.

PLANT ESTABLISHED—Segal Metal Products has established its plant at 1731 East Anaheim Street, Long Beach.

INCORPORATION—Eaton Pump Mfg. Co., Inc., Long Beach, has been incorporated with $10,000 capital by A. L. Eaton and associates.

ADDITION—A. J. Bayer Co., 2300 East Slauson Avenue, Los Angeles, is building an addition to its iron and bronze foundry, covering 5400 square feet.

NEW BUILDING—Thermador Electric Mfg. Co., South Riverside Drive and Atlantic Boulevard, is building an addition covering 8500 square feet for additional facilities for production of radio and radar transformers, ammunition boxes and practice bombs.

INCORPORATION—Skycraft Industries, Inc., Los Angeles, has been incorporated with $25,000 capital by E. A. Permins and K. P. Larsen, both of Venice, Calif., and F. G. Perkins, Culver City.

WAREHOUSE ADDITION—Monarch Steel Products Co., 1960 Cypress Street, Oakland, will build a corrugated iron and steel warehouse addition covering 35,000 square feet, costing about $32,500.

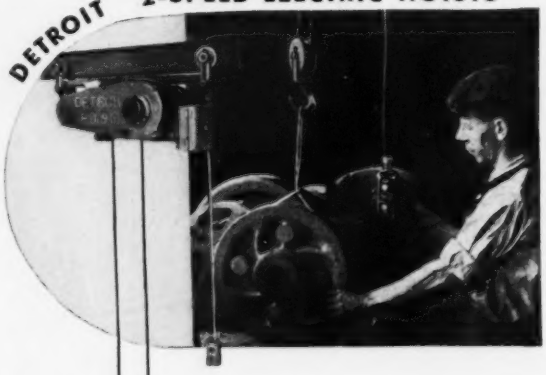
NEW BUILDING—Simpson Screen Co., Oakland, will build a one-story brick and corrugated metal building covering 6000 square feet, costing $10,500, for manufacture of metal building specialties.

WAREHOUSE—Safeway Scaffold & Equipment Co., Oakland, is planning a one-story concrete warehouse costing $10,000.

SHOP BUILDING—C. R. McKee and C. L. Hamilton, 841 San Pablo Avenue, Oakland, will build a brick machine shop building costing about $4000.

DEFINITE SLOW-SPEED CONTROL FOR ACCURATE SPOTTING WITH

DETROIT 2-SPEED ELECTRIC HOISTS



These hoists have two, definite, dependable hoisting and lowering speeds regardless of the variation in amount of load handled—a slow speed for accurate spotting, or careful handling as in foundry work, a high speed for general purposes. *Ask for further interesting information.*

DETROIT HOIST & MACHINE CO.
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DETROIT
ELECTRIC AND PNEUMATIC
HOISTS AND CRANES

PLANT—Western Neon Corp., Oakland, will build a $50,000 plant at Third Avenue and East Eighth St., Oakland, when priorities can be obtained.

FACTORY BUILDING—Madsen Iron Works, Vernon, has obtained a building permit for a factory building at 5631 Bickett Street to cost about $9,000.

EXPANSION—Solar Aircraft Co., San Diego, has received a $65,000 increase in contract to provide additional facilities at Des Moines, Iowa, making overall commitment $1,680,000.

FABRICATING STEEL PLANT—One of the largest steel fabricating plants on the Pacific Coast will be constructed in Oakland by the J. Philip Murphy Corporation of San Francisco, who has purchased 14 acres of industrial property for approximately $75,000.

PLANT ADDITION—Thermador Electric Mfg. Co., 5119 South Riverside Drive, Bell Garden district of Los Angeles, is building a plant addition costing about $19,500 and making plant alterations costing $2,000.

STORAGE BUILDING—Chicago Engineering Co., 97 West Union St., Pasadena, is building a storage building at a cost of about $4,000.

PLANT ADDITION—Fletcher Aviation Co., 809 South Raymond Ave., Pasadena, is building a plant addition to cost about $7,900.

ADDITION TO PLANT—Dow Chemical Co., Gardena, is building an addition to its styrene plant at 20021 South Vermont Ave., estimated to cost about $1,796,000.

PURCHASE—Plans have been announced by Thermoid Company of New York to purchase Grizzly Manufacturing Co.'s West Coast plant and equipment at Los Angeles, the purchase including complete line of Grizzly oil field, industrial rubber and aviation products and all patents covering those products, including inventories and accounts receivable.

NEW FOUNDRY—A new Dalmo-Victor foundry is being built at the old Spring Valley water plant north of San Carlos, for the production of magnesium and aluminum parts for Boeing's B-29. The new building has a floor space of 16,000 square feet.

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THE WEST ON ITS WAY

FACTORY BUILDING—Miller Machine Co., Glendale, has obtained building permit for a factory building at 3612 San Fernando Rd., to cost about $5,500.

EXPANSION—A $500,000 expansion program by the Loose-Wiles Biscuit Company, 851-81st Ave., Oakland, will increase capacity by 120,000 square feet, and will increase production by 60 per cent.

COLORADO

MANUFACTURING PLANT—Gates Rubber Company, 999 South Broadway, Denver, is building a four-story manufacturing plant to cost about $450,000.

IDAHO

PLANT—Idaho Concrete Pipe Company, Nampa, will erect a plant 80x 80 feet, which will cost about $36,500, with equipment.

MONTANA

SAWMILL—R. F. Chase of Cody, Wyoming, has purchased the timber on a 128-acre tract in Mill creek drainage of the Absaroka forest in the Shields River region in south Montana and plans to construct a sawmill there.

CONTRACT AWARD—August Johnson of Fairview has been awarded a contract to construct a tile and brick cold storage and locker plant addition at Sidney Locker & Creamery Co., Sidney.

ADDITION—The Hart-Albin Company, Billings, has announced plans to construct a four-story, fireproof addition to the present store, the addition being so planned that six more floors can be added later.

FLOUR MILL—Ellison Milling & Elevators Co., Ltd., of Layton, Utah, are awaiting priorities for construction of a 600-barrel flour mill at Conrad, estimated to cost $500,000.

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NEW MEXICO

ARMY CONTRACT AWARDS—Ponsford Brothers of El Paso have been awarded one of two contracts by U. S. Engineers district, Albuquerque, for additional construction of the Pyote, Texas, Army Air Field, in the amount of $62,081.

OREGON

ADDITION—Plans for construction of an estimated $25,000 two-story addition to the existing Van Duyn candy factory at Eighth Avenue and N.E. Broadway, Portland, are being completed.

REORGANIZATION—The Oakridge Timber Company, Salem, is being organized as an Oregon corporation following its dissolving as the Penn Timber Co. of West Virginia, and will be capitalized at $780,000 in preferred stock and 8500 shares of common stock at no par value.

WHEAT ELEVATOR—Swanson Warehouse, Ione, has been authorized by WPB to construct a $22,473 wheat elevator with a 100,000-bushel capacity.

TUBE FACTORY—Priorities have been obtained for construction of the first unit of the newly organized Northwest Tube & Metal Fabricators adjacent to Southern Pacific trackage on S. W. 18th, south of the Iron Fireman plant at Portland. Total cost of the project is set at $100,000, including machinery.

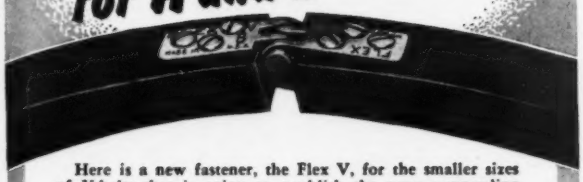
ALCOHOL PLANT—Two buildings, an office and warehouse, and foundations for the main building of the Willamette Valley Wood Chemical Co.'s alcohol plant on the Springfield industrial tract have been completed, the project moving along on schedule with both labor and supplies sufficient.

CANNERY—The Blue Lake Producers Cooperative of Salem plan immediate construction of a $120,000 structure housing a combined warehouse and cannery, machinery and special equipment to cost approximately $230,000 to $265,000.

ADDITION—The Northwest Glass Co. will construct an addition 95x 44 ft. in area to the building now under construction at 5801 E. Marginal Way, at a cost of about $11,000.

and now the FLEX V TRADE-MARK

A new Fastener for A and B V-belts



Here is a new fastener, the Flex V, for the smaller sizes of V-belts that is going to establish the same outstanding performance record as the Alligator V-belt fastener has already established for the larger sizes of V-belts.

This new Flex V fastener is made in two sizes for A and B section V-belts. It is simple in design, easy to apply and the separable hinge joint makes for quick replacement of V-belts without dismantling shafting or machinery. No metal touches the pulley so Flex V fastened belts can be run on a V-flat drive.

Folder No. V-12 gives complete details on this new Flex V fastener with list prices, special tools and application information. Your request will bring a copy.

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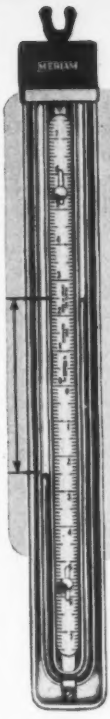
Also sole manufacturers of Alligator Steel Belt Lacing for flat transmission belts. Alligator V-belt Fasteners for V-belts and Flexco HD Belt Fasteners and Rip Plates for fastening and repairing conveyor belts.



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THE WEST ON ITS WAY

BUILDING—System Transfer Co. is going ahead with the building of a garage, warehouse and store building at 2812-22 Second Avenue at a cost of about $20,000.

ALTERATIONS—Alterations to cost $7000 are to be carried on in the warehouse structure of the Rothchild International Stevedoring Co. at 36 W. Stacy Street, Seattle.

ALTERATIONS—The building at 1520 Bellevue, Seattle, will undergo alterations to adapt it for use as a factory by Olympiad Sportwear and is estimated to cost about $6,000.

FACTORY BUILDING—Fowler Mfg. Co., Southeast Eighth Street, Portland, is having plans made by Claussen & Claussen, Guardian Bldg., for a one-story factory building at 26th and Gladstone Streets, Portland, to cost about $90,000.

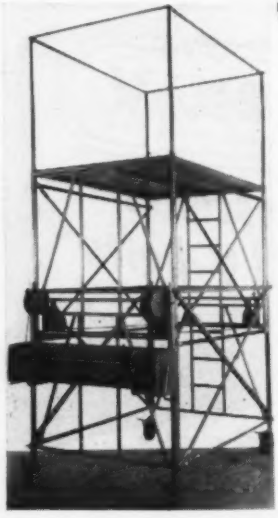
GOVERNMENT CONTRACT—Beaver Cabinet Works, Corvallis, has been awarded a $3 million Government contract to produce 35,000 bulkheads, or ends, for 17,500 Quonset huts, involving 16 million feet of plywood and 11 million feet of lumber.

WAREHOUSE AND PLANT—Bioproducts Oregon, Ltd., Astoria, has received priorities for a cold storage warehouse and $50,000 plant of concrete to extract vitamins, chemicals and fish oil for tanning.

STEEL WAREHOUSE—American Steel Warehouse Co., 920 Northeast Glisan St., Portland, has received WPB authorization to build a steel warehouse.

ARMY CONTRACT AWARD—The Viking Automatic Sprinkler Co. has been awarded a $104,592 contract by the district army engineers at Portland for the installation of six sprinkler systems at six warehouses at the Umatilla ordnance depot near Hermiston.

SAWMILL—A new sawmill to be known as the Fir Ridge Lumber Co. is now being constructed at a cost of about $5000. The mill will be electrically operated and located just west of the railroad and south of Tangent Street, Lebanon.



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CAFETERIA—Commercial Iron Works, Portland, has been granted priorities to install $46,000 worth of equipment for operation of two in-plant cafeteria buildings now being constructed by Howard Halvorson, Portland, under a $31,140 contract.

WASHINGTON

PURCHASE—The purchase of a controlling interest in the Kenworth Motor Truck Corp. by the Pacific Car and Foundry Company has been announced in Seattle.

NEW MANAGEMENT—Karlen Davis Co., Tacoma, has bought, for $140,000, the Henry Mill & Timber Co. property at Old Town. The mill will continue operations without interruption.

WAREHOUSE EXTENSION—Continental Can Co., Thirteenth and Dell Sts., Walla Walla, plans a warehouse extension at its plant to cost about $100,000.

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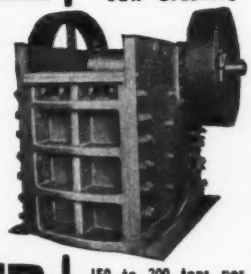
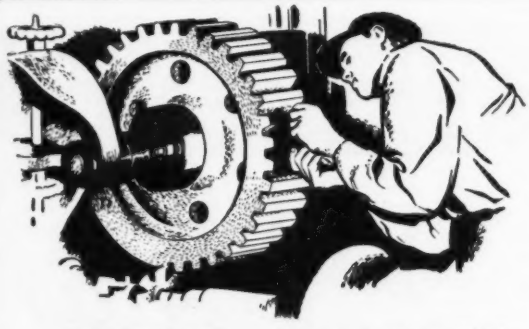


150 to 200 tons per Hr. Crushing Steam Shovel Rock to 5" and 6" minus. Size 24 x 42 wt. 54,200 lbs.



UNEQUALLED AND NOTEWORTHY

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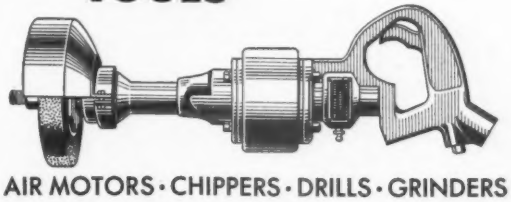
SCREW DRIVERS · TAPPERS · ETC.

C-P PNEUMATIC TOOLS



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WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

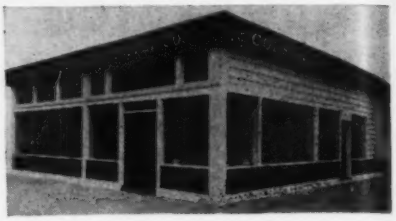
Nicholas B. Bobrick, formerly manager of marine engine division of the **Johnson Specialty Company,** Wilmington, Calif., distributors of Murphy Diesel engines, has joined the staff of the **Bardco Manufacturing & Sales Company** of Los Angeles and Dayton. He will specialize in the marine equipment produced by the Bardco company.

Warman Steel Casting Company, Los Angeles, has announced the appointment of **John W. Mellor** as vice president in charge of operations. Mr. Mellor was associated with the Western Electric Company in Chicago for eight years, then was associated with several consultants in management engineering. Later he was with the Universal Atlas Cement Company and the Carnegie-Illinois Steel Co. Before coming West to join the Warman organization, he was in charge of methods and industrial engineering work at the Lorain Works in Johnstown, Pa.

Members of the official family of **Clark Tructractor** and **Clark Equipment Company** and their western representatives were hosts at a dinner in Los Angeles, at the Biltmore Hotel, January 11, another of a series that have been held throughout the country. Those present were shown film on the various plants in the Clark group, and film on modern material handling methods.

From left, seated: R. J. Burrows, Ezra W. Clark, R. H. Braun. Standing: George Spatta and Glen L. Codman.

A. L. Papworth, for five years general sales manager of **Pacific Manifolding Book Co.,** has been placed in charge of sales for the largest division of the parent company, Moore Business Forms, the **American Sales Book-Gilman Division. G. R. Oliver,** former assistant general sales manager of the company, succeeds him as general sales manager.



Colson Equipment & Supply Company has opened a new sales office at 350 **Tenth Street,** Oakland, to serve the East Bay area. **Paul W. Osgood,** who has represented the company in this territory for the past seven years, will manage the new branch.

Listenwalter & Gough, Inc., announce a change in name to **Gough Industries, Inc.,** to cover the many new departments which have been added, the ownership, management, personnel and facilities remaining the same: **Philip G. Gough,** president; **James S. Addis,** vice president; **E. J. Field,** secretary; **E. E. Karsten,** treasurer; main office at 819-827 East First Street, Los Angeles, and branch offices at Long Beach, San Diego and Santa Barbara.

Henry Ahnemiller succeeds **A. W. Kerwith** of the **West Disinfecting Company's** Seattle branch, which operates in Washington, Northern Idaho, Western Montana and the Territory of Alaska. Mr. Kerwith has been given an assignment as managing director of the company's operations in Canada with headquarters in Montreal.

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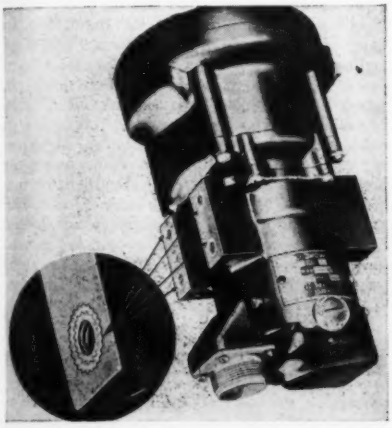
THE SHOWCASE

146

Locked-in Insert—The motor shown in the illustration, for actuating cowl flaps and air cooler flaps on the PV-2, required a rigidly secure mounting in the plane. Since the metal of the mounting boss was too soft to assure permanent fastening, Rosan standard locked-in inserts were installed, as shown, to give this soft metal the fastening strength of steel. The inserts, consisting of two pieces, a threaded insert with a serrated collar and a locking ring



which is serrated inside and out, is screwed into a counterbored tap-hole flush with the surface of the parent material. The ring is then pressed or driven into the counterbore. The inner teeth of the ring engage the serrations on the insert collar, while the outer teeth broach the wall of the counterbore and lock the insert in place. The unit then becomes an integral part of the parent material. It can be removed or replaced without disturbing the parent material by employing a simple, shallow drilling operation. *Barwell & McAlister, Inc., Hollywood, Calif.*

147

Wirebound Boxes—Wirebound boxes and crates manufactured of light-weight wood and stapled with steel wire, giving the box a flexibility that acts as a shock absorber in taking knocks, and thus cutting down damage to contents, are produced by the *Wirebound Box Manufacturers Association, Chicago, Ill.*

148

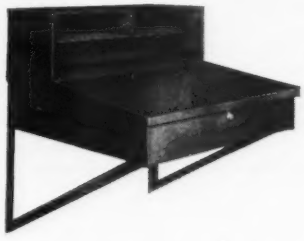
Plastic Terminal Block—In this patented terminal block, a cam-action "bridge" element bears against the lugs or terminals to be interconnected, avoiding screw fastening devices. Assembly time is materially reduced since it is not necessary to use wrenches to assemble wires to the terminal panels, and the block may be used in place of costly disconnect plugs installed primarily to facilitate production speed requirements. A quick self-locking feature provides for snap-in contacts, holds the contacts firmly in position, and requires manual release by means of levers. Identification markers, coded in the same manner as conventional terminals, are applied to the disconnect lever and are clearly visible when the lever is in the locked position. Another feature is that, with a cover, it provides its own mechanical protection, eliminating junction boxes. *The Paul Henry Company, Los Angeles, Calif.*

149

Pillow Block—A new Dodge-Timken bearing known as Type "E" is now available in both pillow blocks and flanged units. It is designed to give 30,000 hours or more of service under conditions for which it is adapted as determined by use of standard selection tables applying to the complete Dodge-Timken line. On each end of the extended inner race is a steel collar having two headless set screws spaced 120° apart and extending through clearance holes in the inner race to the shaft. These four set screws provide a positive lock to prevent rotation of the inner race on the shaft. Simple, effective labyrinth seals prevent loss of lubricant and protect bearings against damage from dust, dirt or moisture, being equally effective whether the bearing is on or off the shaft. *Dodge Mfg. Corp., Mishawaka, Ind.*

150

Steel Wall Desk—Lyon steel wall desks are again available. They may be easily attached to any convenient wall space, building column or the end of shelving racks and are especially suitable for inspectors, timekeepers, checkers and others. These desks have a 24⅝ x 14 in. work-



ing surface, large storage compartment and three open compartments across the back of the desk. Each is equipped with a pencil tray on either side and a grooved lock with two keys and are finished in Lyon green baked enamel. *Lyon Metal Products, Inc., Aurora, Ill.*

151

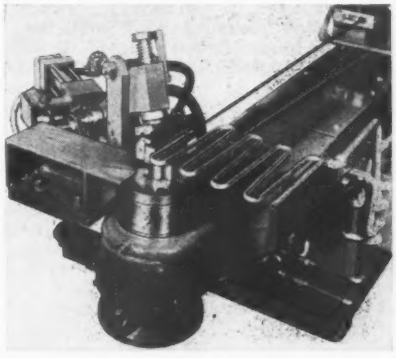
Blackening Finish for Ferrous Parts—Ferrotoning, a new chemical blackening finish for ferrous parts, providing a gleaming black or rich matte finish which is integral with the metal itself and extremely durable, and eliminating the necessity of maintaining two exidizing solutions, has been developed by *Turco Products, Inc., Los Angeles, Calif.*

152

Dividing Head—The Ellis improved Double-Swivel Dividing Head, formerly known as the Republic Dividing Head, has been improved recently with extra blank index plate which may be drilled for special operations, ground worm, holddown bolts, overall construction made sturdier and stronger for extremely close tolerante work. Group assembly which is furnished includes riser blocks, index plates, tail stock, center with driver arm, standard and double-swivel bases and holddown bolts. *Ellis-Lawyer Tool Co., Alhambra, Calif.*

153

Small Automatic Bender—A new small size, high-speed, full automatic bender for handling tubing up to 1 inch O.D., developed especially for tubular furniture, refrigeration and heating industries and others where high production bending of small diameter tubing is required, is announced by Pine Engineering Company. When



equipped with a multiple angle selector, this bender will make up to 50 tubular chairs per hour with 8 bends in each chair. A special application has been developed for making serpentine coils, as shown in illustration. *Pines Engineering Company, Aurora, Ill.*

154

Electrode Holder—A revolutionary new type of electrode holder is made by Pacific Engineering Corp. called the "Mor-Weld." One feature is the heat-resisting "Everlast" plastic jaw cover. "Mor-Weld's" flexibility enables welding rod to be consumed down to a stub without the necessity of bending. The quick-change, lever-action jaws can be replaced in less than a minute without tools. All parts are quickly interchangeable because there are no pins nor belts, and the holder is scientifically balanced for use. *Pacific Engineering Corporation, Los Angeles, Calif.*

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155

Switch Keying Relay—Originally designed for aircraft use, the new Struthers-Dunn Type 78CCA100 vacuum switch keying relay likewise has many applications in other fields where units of this type are required. Designed for extreme reliability in holding its adjustments, this keying relay is of new, simplified and rigid construction and utilizes an absolute minimum of parts. It weighs little, is exceptionally sturdy, and has all parts readily accessible for inspection or adjustment. The relay has seven poles, including one double-throw pole which handles high-voltage radio-frequency currents by means of a vacuum switch. All high-voltage parts are rounded to reduce corona. *Struthers-Dunn, Inc., Philadelphia, Pa.*

156

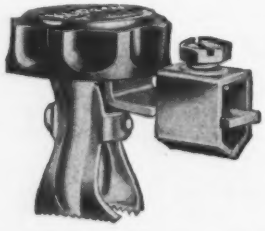
Baby Saw—Weighing about 2¾ lbs. and about 8 in. long, the Cleco Pneumatic Baby Saw rips metal sheet to 3/16 in. thick, steel, brass, aluminum, etc.; will cut 1/16 in. steel at the rate of 1 in. per second, on a straight line, or curved, leaving edges free from burrs. It uses a saw of special steel, especially heat-treated for the work. *Cleveland Pneumatic Tool Company, Cleveland, Ohio.*

157

Plastic Tool Covering—A protective device consists of applying a strong plastic coating to each carbide tipped tool in transit, stockroom or toolroom bin immediately after final inspection at the plant. Although the covering is air- and moisture-proof after initial application, it will not leave any gummy residue on the working surfaces when removed from the tip. *Wendt-Sonis Co., Itannibal, Md.*

158

Test Clamps—Heavy duty test clamps with solderless lugs, employing tremendous jackscrew gripping action is announced by Trico Fuse Mfg. Co. A slight twist of the finger-tip safety knob exerts the pressure, supplying large carrying capacity of 20 to 350 amperes on con-



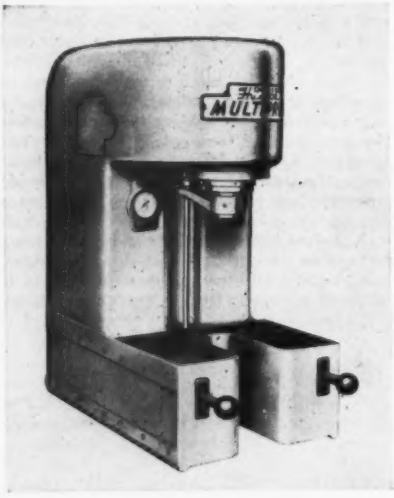
stant and intermittent duty. The solderless lugs provide perfect and quick electrical connections without use of special tools or cutting into wire; arranged to swivel around clamp, permitting wires and cables to hang in a natural position after installation. Available in six sizes. *Trico Fuse Manufacturing Co., Milwaukee, Wisc.*

159

Pumping Unit—A new pumping unit, designed and built by Blackmer for use in the oil fields as a gathering pump has just been announced. The specifications of the new unit are as follows: Capacity, 50 GPM; pressures to 500 psi; mechanical efficiency at 500 psi 70 per cent; suitable for suction pressures from 0 to 100 psi; will handle crude oils of viscosities from 40 SSU to 200 SSU —specific gravity .82; power—25 HP gasoline engine, mounted on common fabricated steel skid with pump, reduction gearing and clutch. The pump is equipped with special anti-friction bearings. The stuffing box is so designed that vacuum is maintained on the packing chamber thus reducing leakage to an absolute minimum. *Blackmer Pump Co., Grand Rapids, Mich.*

160

Bench Press—The Denison Engineering Company announces a new multi-purpose oil-hydraulic bench press called Multipress which will speed up operations requiring anywhere from 300 to 8,000 lb. pressures in single, or repeated up and down strokes. Basically an oil hydraulic press of many uses, it will deliver up to 4 tons



downstroke pressure and up to 5000 pounds "pull up" pressure though completely self contained in a streamlined housing measuring only 16"x 26"x 34" and weighs only 745 lbs. In addition, it has been especially designed to utilize a wide variety of accessories and fixtures with which it can perform innumerable production operations, such as pelleting, honing, broaching, peening, assembling, burnishing and straightening, etc. *The Denison Engineering Company, Columbus, Ohio.*

161

Precision Live Center—A "live" lathe center for handling heavy loads up to almost six tons is announced by the Ideal Commutator Dresser Company. This new center, called the No. 6MH, has a guaranteed tolerance of .0000 to .0005. To handle radial loads up to 5750 lbs. and thrust loads up to 8500 lbs., a special bearing arrangement is used. Two precision ball bearings in tandem support the spindle at the front; and two angular contact ball bearings preloaded, support it at the rear of the housing. This arrangement also eliminates radial play and possible chatter. For positive protection of these bearings against the entrance of chips, dust, coolant and other foreign matter, two sealing rings are used. This center made with the No. 6 Morse taper only; shipping weight approximately 20 lbs. *Ideal Commutator Dresser Co., Sycamore, Ill.*

162

Ice-Crusher Slinger—New "440" ice-crusher slinger announced by Link-Belt Company is a large capacity, portable machine for heavy-duty service, capable of crushing six 300-lb. cakes of ice in 90 seconds and slinging the resulting "snow-ice" into refrigerator cars through a flexible discharge hose held and directed by the operator. The machine has a low-hinged ramp and a chain type feeder with pushers that take hold of the cake of ice and automatically feed it into the crusher. No lifting of cake is necessary, and the crusher and all working parts of the machine are enclosed. Separate motors operate the feeder-conveyor, crusher and slinger. Push-buttons are conveniently located on the control panel. The machine is available for use with direct current and 2 or 3 phase A.C. *Link-Belt Company, Chicago, Ill.*

163

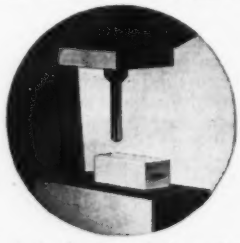
Clamped-on Tools—Kennametal Inc. is producing a line of "H.D." tools having clamped-in and advanceable Kennametal tips, for heavy duty machining on steel castings, forgings, and bar stock, and cast iron. The H.D. design has been made possible by the development of heavy-duty Kennametal tips, that, while overhanging the tool shank by about 1/16 in., have ample strength to take heavy feeds and depths of cut. A special type of tip used in the H.D. tool has a clamping shelf along the top of the side opposite to the cutting edge, diamond ground on the under side, and may be reground for sharpening many times, only the cutting edge being ground and no steel removed in the process. *Kennametal Inc., Latrobe, Pa.*

164

Tool Holder—A new type flexible tool holder, Tool-Flex, is announced by Richmont, Inc. In place of complicated mechanism, Tool-Flex utilizes a simple, inexpensive, oil-resistant Neoprene rubber insert as the "Universal joint" in which the tool floats. This construction consists of only five parts: body or shank, rubber insert, holder, rubber grommet, retainer cap. Designed expressly as a follow-up tool, it compensates for both parallel and angular misalignment of turret head or tail stock with the lathe spindle. The specially compounded Neoprene rubber insert, by absorbing shocks in such operations as tapping and portable tool drilling, reduces tool breakage, vibration in jigs being practically eliminated. *Richmont, Inc., Los Angeles, Calif.*

165

Anvil Block—A product of Acme Industrial Company, the new "Anti-Wear" anvil blocks can be wrung to any flat anvil, adhering firmly. Because the work rests on the anvil block instead of the instrument anvil, the block takes



the wear. It is also lapped flat and parallel on all four sides to within a few millionths of an inch, and made of hardened and seasoned gage block steel to assure accurate readings. *Acme Scientific Division of Acme Industrial Co., Chicago, Ill.*

166

Metal Washing Tank—A three-stage metal washing tank has several new features, and designed for use with an emulsifying cleaner or as an alkali washer, it comprises a heated solvent tank with two heated water rinse tanks. The heated solvent tank offers a thermostatically controlled range from 135 degrees F. to 250 degrees F. and a drain board which conducts the "drag out" solvent back into its tank. After immersion in the cleaning agent and draining, the parts are immersed in the first, then the second rinse tanks, emerging, finally, completely oil and dirt free. The water rinse is also heated, with a controlled flow that keeps the temperature at about 180 degrees F., and an arrangement provides for the removal of most of the dirt and oil in the first rinse so that the final one produces oil-free work. The solvent tank is heated by strip heaters and the water rinse by immersion heaters. The heated tank's walls are insulated and working parts are easily accessible. Two safety covers hang at the side of the tank when not in use, protecting the operator from contact with the tank itself. *Phillips Mfg. Co., Chicago, Illinois.*

YOURS FOR THE ASKING

1640

Gear Facts—The Johnson Gear & Mfg. Co. is now releasing "Gear Facts," a compilation of essential engineering data and charts for the use of engineers, master mechanics, machinists and other craftsmen. Its purpose is to present fundamental information in the proper design and use of all types of gears; the book has 80 pages, is illustrated by photographs and line drawings, and has complete tables of tooth parts, diameters on diametral and circular pitch, including formulas. *Johnson Gear & Mfg. Co., Berkeley, Calif.*

1641

Carbide Tools—Metro Tool & Gage Co. issue a 6-page illustrated bulletin describing complete line of Metro standard carbide tipped tools for shop use on the majority of all turning, facing and boring operations on all types of steel, cast iron, bronze, aluminum, non-metallic, etc. *Metro Tool & Gage Co., Chicago, Ill.*

1642

Hydraulic Devices—Bulletin No. 137 put out by Lyon-Raymond Corporation describes hydraulic devices engineered and developed for specific applications, is illustrated and consists of four pages. *Lyon-Raymond Corp., Greene, N.Y.*

You owe it to yourself to keep posted—only the efficient business survives under the strain and pressure of the war effort. Literature listed in these columns may be just the answer to your need for greater production, substitute materials or knowledge of how to care for your equipment. Just drop a note to Western Industry, 503 Market St., San Francisco, and copies will be forwarded to you. If you do not use business letterheads, please name your company affiliation.

1643

Instrument Transformers—A new 56-page booklet, "Instrument Transformer Accuracy Standards," has recently been made available by General Electric Company. A two-part booklet, the first part explains the ASA accuracy standards for potential and current transformers and shows how they differ from the NEMA standards, and the second part consists primarily of a handy guide for the selection from a complete line of standard indoor and outdoor current and potential transformers. *General Electric Co., Schenectady, N.Y.*

1644

X-Ray Spectrometer—North American Philips Company announces a new piece of literature covering the Norelco Geiger-Counter X-Ray Spectrometer describing the range of applications that can be handled by this industrial tool. *North American Philips Co., Inc., New York.*

1645

Torq-Stop Tools—Richmont, Inc. issue a 5-page catalog describing and illustrating Livermont Torq-Stop tools. *Richmont, Inc., Los Angeles.*

1646

Operator's Handbook—The B. F. Goodrich Company publishes a 96-page pocket-size handbook filled with pertinent data on each of the tires which the company makes for commercial service. An important section deals with the factors which affect truck tire life, and another chapter deals with instructions on how to mount synthetic tubes correctly, the application of synthetic tubes and flaps. *B. F. Goodrich Company, Akron, Ohio.*

1647

Sheave Block Data—Downs Crane & Hoist Co. publish Bulletin No. D.S.8 and add to catalog, providing charts for hoisting service. *Downs Crane & Hoist Co., Los Angeles, Calif.*

1648

Catalog—The Chemical Publishing Co., Inc., has just issued a new catalog of technical books which includes the latest books on chemistry, technology, physics, general science, mathematics, engineering, foods, formularies, drugs and cosmetics, gardening, medicine, metals, technical dictionaries, etc. *The Chemical Publishing Co., Inc., Brooklyn, N. Y.*

1649

Tachometers—Bulletin No. 44-1, just published by Jones Motrola Company, describes four models of Jones individual-mount tachometers and the Jones multi-range portable hand tachometer. The bulletin shows both full-face and profile views of the individual tachometers, r.p.m. ranges available, mounting dimensions, and includes prices for tachometers and appurtenances, a section on use and operation, and general installation data. *Jones Motrola Co., Stamford, Conn.*

1650

Illustrations—The series of full-page illustrations called "History of Communications," published in radio trade magazines during 1944 by the Universal Microphone Co., have been reprinted in pictorial portfolio form in more than a dozen pictures, depicting various stages in the advancement of communications through the ages. Of suitable size and arrangement to frame for office, den or hobby room, these pictures, by artist Keith Thomas, start with the early days of the Phoenician and Greek runners and end with a modern drawing from World War II. Brief descriptions accompany each illustration to describe the successive steps in the advancement of communications methods. *Universal Microphone Company, Inglewood, Calif.*

1651

Machine Screw Thread Dimension Table—A handy table of machine screw thread dimensions, printed in pocket-size card form, is being issued free by Manufacturers Screw Products, manufacturers of "Stronghold" line of fastening devices. The table shows the nominal diameter and threads per inch for all standard machine screws and the maximum and minimum major, minor and pitch diameters for each size. *Manufacturers Screw Products, Chicago, Ill.*

1652

Cleaning Technique—A 12-page digest entitled "Production Cleaning of Die Castings" has just been released by Oakite Products, describing various cleaning techniques and materials for the surface preparation of aluminum, zinc, magnesium, brass, bronze, copper, lead or tin base die castings prior to the application of organic, chemical or electro-plated finishes. *Oakite Products, Inc., Los Angeles, Calif.*

1653

Tool Catalog—A compact, pocket-size, 116-page catalog was recently released by the Lake Shore Tool Works of Chicago, divided into seven general sections, illustrated and supplemented by concise descriptions, dimensions, and price information. *Lake Shore Tool Works, Chicago, Ill.*

1654

Stoker—An 8-page bulletin describing the new "AE Perfect Spread" stoker, with photographs, cross-sections and drawings has been published by the American Engineering Company titled "More Steam at Lower Cost." *American Engineering Company, Philadelphia, Pa.*

1655

Hydraulic Straightening Presses—Colonial Broach Company describes in its Bulletin No. VLI-44 its line of new hydraulic straightening presses, Model VL-1. The bulletin also lists standard and extra equipment and gives specifications on models ranging in capacity from 10 tons to 50 tons. *Colonial Broach Co., Detroit, Michigan.*

1656

Magnesium Pamphlet—Permanente Metals Corporation offer a 15-page informative illustrated pamphlet on magnesium. *The Permanente Metals Corp., Permanente, Calif.*

1657

Compar Catalog—Resistoflex Corporation announces a new 16-page illustrated catalog of industrial products made from compar, the specially compounded solvent-proof vinyl resin. The properties, characteristics and specifications of each industrial product are contained in 12 illustrated sections, five pages are devoted to research, development and engineering, and a question and answer section gives general information on compar. Names and addresses of branch representatives covering 46 states and Canada are given on the inside of the back cover. *Resistoflex Corp., Belleville, N. J.*

1658

Die Castings—A folder describing and illustrating the new HHP-1 (zinc, tin, lead) die casting machine as well as five other models is put out by *Lester-Phoenix, Inc., Cleveland, O.*

1659

Electronics—"Can Electronics Improve Your Product?" is the title of a new 32-page, illustrated booklet designed to help executives seeking sources for electronic features to be incorporated into mass-production products. *Operadio Mfg. Co., St. Charles, Ill.*

1660

Decimal Equivalent chart—Dayton Rogers Mfg. Co. offer a calendar decimal equivalent chart. *Dayton Rogers Mfg. Co., Minneapolis, Minn.*

1661

Postwar Farm Market for Manufacturers—Facts and figures on postwar farm market for manufacturers detailed in a new 8-page report describe the waiting market for manufacturers who have articles to sell to the farmer. *George S. May Business Foundation, Chicago, Ill.*

1662

Insulation Resistance—Leeds & Northrup announce publication of an 8-page catalog entitled "To Measure Insulation Resistance—L&N Test Set Assemblies" describing assemblies which are completely guarded from the effects of leakage currents and presenting two assemblies—one, especially for routine plane use; the other for laboratory measurements. *Leeds & Northrup Co., Philadelphia, Pa.*

YOURS FOR THE ASKING *(From Pg. 81)*

1663

Corrosion & Scale Control—D. W. Haering & Co., Inc., have just issued "H-O-H Water Studies," a collection of articles on the control of corrosion, scale and algae. This 1945 edition has been enlarged to provide the latest information on corrosion and scale control in water jacket cooling systems and to report a series of studies on water problems in atmospheric cooling systems. Discussions of steam and return system corrosion; glucosates; and proportioning problems, are also contained in this 52-page booklet. *D. W. Haering & Co., Inc., Chicago, Ill.*

1664

Broach Sharpeners—An 8-page illustrated bulletin describing its new broach sharpeners has been issued by Colonial Broach Co. The booklet contains descriptions of cylindrical and flat broach sharpening operations; the machine's lubrication system, electrical controls, etc.; and complete general specifications for the two sharpeners together with lists of standard and extra equipment offered. *Colonial Broach Company, Detroit, Mich.*

1665

Control System—Leeds & Northrup announce a new 25-page catalog describing an entirely new control system designed to regulate electric input so precisely that temperature is held steadily as specified. Schematic illustrations show how control action is obtained by regulating the proportion of time during which current is "full on" and "full off." Also included is an explanation to show how easily an operator can "tune" the control to his particular process. *Leeds & Northrup Co., Philadelphia, Pa.*

1666

Swing Boom Crane—A new catalog of 24 pages, 74 photographs and diagrams, and factual concise specifications, fully describes the "Krane Kar" mobile swing boom crane. *Silent Hoist Winch & Crane Co., Brooklyn, N. Y.*

1667

Face Shields—A 4-page catalog, describing the new "Hundred Series" of face shields has been released by the Boyer-Campbell Company, with complete specifications and prices. *The Boyer-Campbell Company, Detroit, Mich.*

1668

Salt Bath Quenching Processes—A reprint from "Metals and Alloys" is offered by Ajax Electric Co., Inc., on the development and application of "Isothermal Quenching." *Ajax Electric Co., Inc., Philadelphia, Pa.*

1669

Hydraulic Pumps—The Lyon-Raymond Corporation have printed a four-page catalog addition illustrating by photographs, charts and specifications five of their foot-operated and hand-operated hydraulic pumps. *Lyon-Raymond Corporation, Greene, N. Y.*

1670

Electronics Booklet—Latest edition of Walker-Jimieson's "Industrial Availability Booklet," just off the press, consists of 40 pages. It lists tubes, test equipment, industrial sound systems, electrical maintenance supplies, timers, relays, x-ray machines, constant voltage transformers, condensers, resistors, etc., and other items available from stock. *Walker-Jimieson, Inc., Chicago, Ill.*

1671

Acetylene Generator—Air Reduction has issued a new bulletin featuring the new Airco Type "P" portable generator, incorporating an "air lift" water circulating system and enlarged radiation space between the carbide hopper and water level which eliminate the "hot belt" and provide cooler, double-scrubbed gas. The bulletin describes and illustrates the company's complete line of generators. *Air Reduction, New York, N. Y.*

1672

Handling Materials—The methods used by stevedores to expedite many varied handling operations are discussed in an illustrated article in the latest issue of "Handling Materials," house organ of Towmotor Corporation. The article was prepared after a visit to one of the eastern seaboard's largest stevedores and terminal operators and describes in detail how stevedoring is made an "applied science of material handling." *Towmotor Corp., Cleveland, Ohio.*

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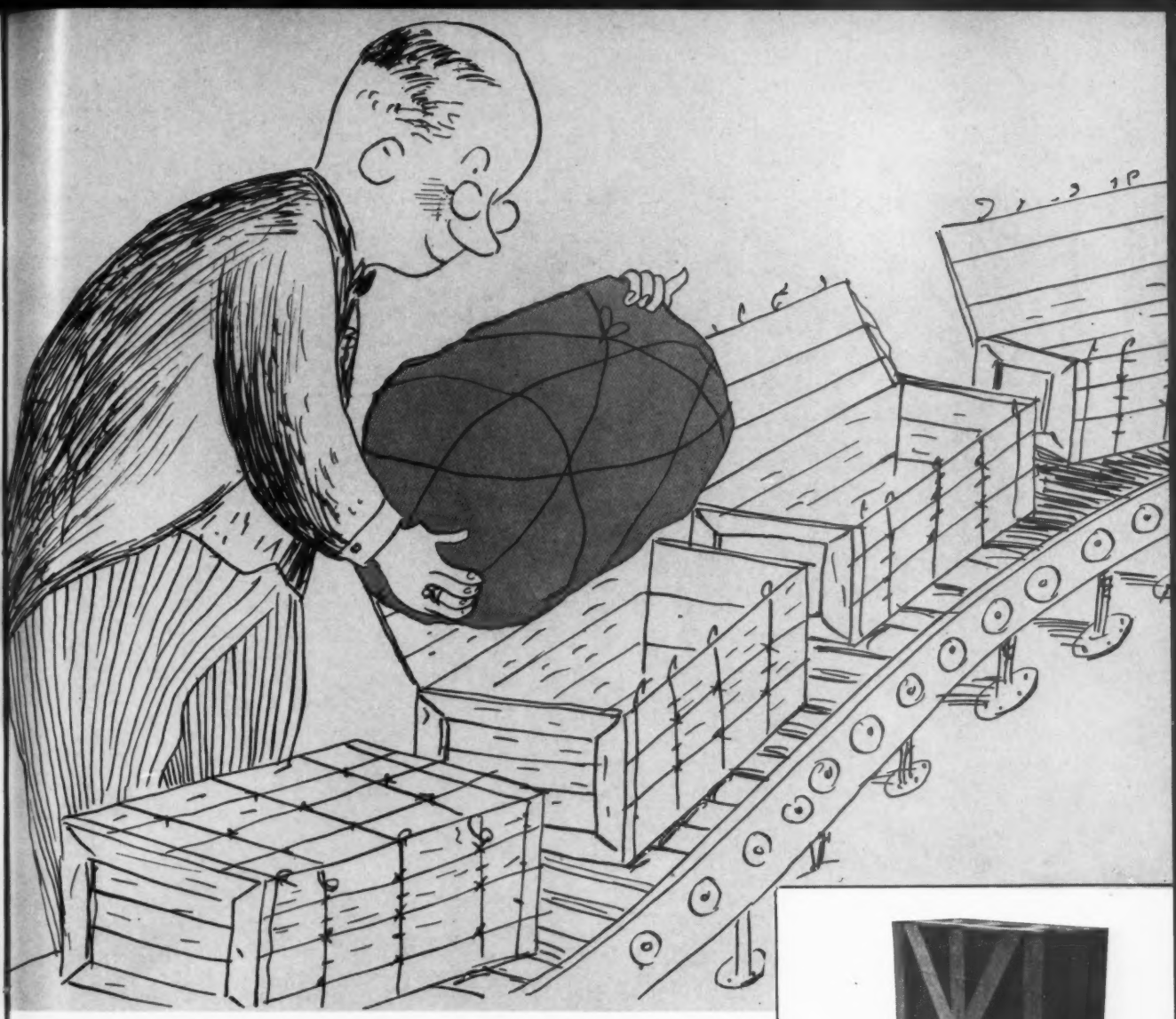

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